LEHIGH ALUMNI BULLETIN

THE PRESIDENT'S HOUSE AND ALUMNI MEMORIAL BUILDING

VOLUME 12 JANUARY, 1925 NUMBER 4

Published Monthly from October to June, inclusive, by the Alumni Association of Lehigh University, Inc.

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ALUMNI BULLETIN
OF
LEHIGH UNIVERSITY

Published Monthly from October to June, inclusive, by the Alumni Association, Drown Hall, Bethlehem, Pa.
Subscription Price, $2.00 a Year
Member of Alumni Magazines Associated
Entered as second-class matter at Bethlehem, Pa., Post-office.
Walter R. Okeson, Editor. A. E. Buchanan, Jr., Asst. Editor.

Volume 12 January, 1925 Number 4

NEWS AND COMMENT

Alumni Council Meeting on February 21 The annual meeting of the Alumni Council will be held on February 21 in the Alumni Memorial Building. This date is chosen because some of the important matters to be considered may require a ballot of the whole alumni body and by holding the Council meeting in February the regular ballot for officers, which goes out in March, will be available for this purpose. These Council meetings have come to be the forum in which alumni affairs receive the attention it is impossible to give them at the annual meeting in June. Therefore it is highly important that every class and club be represented at this meeting.

* * *

The Closing of the Commons After sixteen years of effort to make the College Commons successful socially and financially, it was finally closed last month just preceding the Christmas holiday. In the same week the Harvard Commons, which had been conducted in the Harvard Memorial Building since 1874, was also closed. Both for the same reason—lack of student patronage.

President Lowell, in reporting on the closing of the Harvard Commons, stated that students seemed to prefer eating at cafeterias, "short-order" restaurants and "hot-dog" stands to patronizing a place serving regular meals. This is exactly the condition at Lehigh. With the exception of one or two years, our Commons has always lost money, although at the start it had the advantage of considerable patronage from fraternity men. This has long ago vanished, as all the fraternities now serve meals to their members. The total possible clientele has been the 171 students living in the dormitories, with the addition of a few extra mid-day customers from the ranks of the faculty and from the students living or rooming in the town. As only about half the dormitory men patronized the Commons regularly, that old bug-a-boo, "overhead," has been steadily piling up deficits for a number of years.

Whether or not the Commons will ever be reopened is a question. At Yale, during the past year, the dining-hall has met the test successfully under the direction of a young lady, loaned to Yale by Chicago University. But the Freshmen at Yale must eat at the Commons in a Freshman dining-room, and this insures a large permanent patronage. If Lehigh had dormitories large enough to house the Freshman class and these boys were required to live in the "Dorms" and eat at the Commons, the problem would be solved. At present this would work a hardship on the fraternities, but with the growth in enrollment the fraternities will soon find it to their advantage to limit their membership to Sophomores, Juniors and Seniors, with a rule permitting no pledging until the second semester, such as is the case now at many other colleges. This of course would greatly increase the strength of the fraternities for the large proportion of the men lost by flunking are Freshmen. If the number of fraternities is kept at the present level, the upper classes would be a large enough field for their activities when the college enrollment reaches 1500. The upper classes will then have as many members as were enrolled in the entire college a year or so ago. The only real obstacle to such a plan is lack of dormitory capacity.

Perhaps in the next year or two some second Carnegie will be found to build another dormitory. Then the Freshman year could be made "a thing apart" with a certain amount of supervised study, with uniform living conditions and a gradual breaking of the boy into college life. Now he is dumped unceremoniously into the deep water of the college (which is a very different thing from paddling in the shallow

pools of prep or high schools) with the injunction to "sink or swim."

Whether anything of this kind will ever eventuate at Lehigh is a question. Meanwhile the Commons is closed, much to the regret of all of us who think it a real value and convenience in the University life. Unless the students themselves take some action assuring it of sufficieqnt patronage, there is no chance of it reopening until some basic change in conditions, such as is outlined above, comes to pass.

* * *

Visit From Our New Coach During the week following the Christmas recess our new head coach in football, Percy Wendell, Harvard, '13, made his first visit to Lehigh, where he received a warm welcome. During his stay he met the various members of the football squad as well as numerous faculty members and a number of the local alumni. He examined our athletic plant and football equipment and made himself conversant with local conditions.

The thing that interested him most was the scholastic standing of the boys who play football, and before he left he worked out a plan whereby a weekly check will be kept on the marks of all the members of the squad and special aid in the way of tutoring be given to those who appear to be lagging in their studies. A committee formed of Langfitt, the manager of last season's team; Merrill, captain of team for next year; Bellis, president of the Arcadia and Tau Beta Pi, together with Petrikin, the graduate manager, are to do this checking and see that the men are kept up in their studies. It is expected that men from Tau Beta Pi, Phi Beta Kappa, and the other honorary societies, will do the necessary coaching of the men who are behind in their work. It is hoped that some of the faculty will also volunteer their help. Langfitt will make regular reports to Wendell, so that he may know exactly how each boy is progressing.

This is a new departure and promises well. One of Lehigh's greatest athletic handicaps is the number of promising athletes who fail to make the stiff scholastic grade. A regular system for watching over and tutoring the ones who are weak in their studies will do much to improve the situation.

Another thing which Wendell inquired into very particularly was what each man was doing to keep himself in condition physically. He expects every man to do something to better himself physically from one season to the next. In the spring, when he returns for a short period of spring practice, he will doubtless lay even more stress on this.

On Wendell's last evening in Bethlehem the Lehigh Home Club Directors gave a dinner in his honor at the Bethlehem Club, to which a few guests from the University and town were invited. A number of short talks were made by members of the faculty, trustees, alumni and townspeople, emphasizing the need of giving Wendell a hundred per cent. cooperation in his great task of creating a satisfactory football system at Lehigh. It is to be hoped that this cooperation is forthcoming, for without it little can be accomplished. A coach's own attitude has much to do with creating and keeping alive this cooperative spirit and Wendell's character and disposition is such that all those meeting him feel assured that he will have everybody pulling with him and for him.

* * *

Our Advertisers Perhaps you have noted a new feature in the BULLETIN this fall, entitled, "May We Present our Advertisers?" We are rather proud of our advertisers because we feel that few if any alumni magazines can show a higher grade lot of advertising patrons. In many or in fact in most cases the firm advertising is headed by, or is partially staffed by, Lehigh men. This is so even in some cases where the names of Lehigh alumni associated with the company are not carried as part of the advertising copy. Many of our readers tell us that they enjoy our advertising pages and never fail to look through them to see if any new ads are to be found. On account then of the Lehigh color of and the alumni interest in our advertisers, we propose to tell each month something about them in our reading pages. We want you to know them better and to use them, for on our advertising revenue depends the quality and almost the very life of the BULLETIN. If you use their products, please let us know. If you make inquiries of, or purchases from them, tell them you noticed their ad in the LEHIGH ALUMNI BULLETIN. All other things being equal, Lehigh men should deal with each other or with firms supporting Lehigh. You agree? We thank you.

SCIENTIFIC RESEARCH IN THE UNIVERSITY

Formerly Tolerated as the Hobby of Visionary Theorists, Research Comes into its Own as a Necessary Part of the Teacher's Equipment and a Vital Factor in Economic and Industrial Progress.

By Charles Russ Richards, President of Lehigh University

COMMENTING on the organization of an Institute of Research, in my "Study of the Needs of Lehigh University," I stated that, "In a university, scientific research and productive scholarship fix the standing of the institution and of its faculty; for it is as important to sponsor the acquisition of knowledge as it is to disseminate it." And again in this report I stated that "Modern civilization is dependent upon the results of scientific research and the great industries are coming more and more to realize that their success depends upon a better understanding of the underlying principles of science and their application to the improvement of processes and the elimination of waste. Trial and error methods are no longer satisfactory in comparison with scientific methods. Aside from the value of the information obtained, scientific work in educational institutions may be justified because of the opportunity it affords to train men in the methods of research; and, what perhaps is of greater importance, because it may arouse the latent enthusiasm of members of the teaching staff and prevent them from carrying on their teaching duties in a perfunctory and routine fashion. Students generally have more confidence in and respect for those professors who are recognized authorities in their subjects than for those who have no standing among scholars."

A Banker's View of Research

Quoting from the recently published pamphlet, "The Organization and Functions of the Institute of Research of Lehigh University,"—"Research implies the concentrated study of a particular problem in an effort to learn the truth concerning it, and it involves careful and extended observation and thought, the collection of data and their orderly comparison and reduction, the checking and rechecking of hypotheses, and the careful elimination of extraneous phenomena which accompany but do not affect the problem under consideration. Research is employed by the modern scholar in the advancement of learning, whether it be in the humanities or the sciences; and the knowledge thus secured is the basis of much of the progress in education, in the professions, in industry and in the public welfare."

In a recent letter to me, Mr. George E. Roberts, Vice-President of the National City Bank of New York, stated that "It is unnecessary to comment upon the importance of scientific research in this period of industrial and social development. It is our main dependence for the means of satisfying the aspirations and demands of a restless population. Each generation expects to have higher standards of living than its predecessors and how else can these expectations be met?" In this letter Mr. Roberts further stated that, "Lehigh's reputation for instruction in several branches of science is such as to encourage the belief that this departure (in research) will be fruitful of results."

Every normal child is born with an instinct for research—that is, with an intellectual curiosity and the desire to know the how and why of things. It is through this instinct that his mind is developed and he acquires knowledge, and, if the instinct be not destroyed, that he retains his initiative and stimulates his imagination. During most of the child's life in the home and particularly in the school, the spirit of real inquiry is discouraged. From the day he begins to talk and to ask questions there is a constant effort to destroy his mental initiative and to drag his growing intellect down to a dead level of mediocrity. From the primary school through the University, our educational processes tend to force the individual into a common mold; and little effort is made to distinguish and to stimulate those who have exceptional intellectual ability. Existing educational methods may, therefore, be positively detrimental to those who are thus endowed. Our standards of education and our efforts to turn out a uniformly educated product must, of necessity, produce men having average attainments rather than those having exceptional ones. In the college as well as in the secondary school, the student soon learns that originality is regarded as a nuisance since it disturbs the routine procedure which has become a part of our educational processes. The student soon learns that the path of least resistance in the schoolroom is to accept the instructor's statements without question or interruption. It is an unfortunate though well known fact that the individual whose mental equipment might lead him to the finest intellectual achievements "gets by" during his educational career with a minimum of effort. There is little wonder, therefore, that "student activities" are frequently more stimulating to men of superior qualifications than is the work of the classroom.

A Step Toward Quality Education

In a recent personal letter received from Dr. George E. Vincent, President of the Rockefeller Foundation, concerning the organization of the Institute of Research, he stated that "we have so overdone quanita-

tive higher education that it is a great satisfaction to see institutions turning to the task of qualitative education,—that is, the discovery and development of unusual ability. This is what true training in research inevitably accomplishes."

Good teaching is one of the most important things in the world, for it is through teaching that the knowledge and traditions of one generation are passed on to the next, but good teaching, among other things, is dependent upon good teachers who are learned in the subjects they present and who have well developed habits of study and inquiry. Without such habits the teacher is apt to prematurely "go to seed" and fail to inspire his students with any real fondness for knowledge.

In the report of a Committee of the American Association of University Professors on Extra-Collegiate Activities, presented in the May, 1924, Bulletin of the Association, it is stated that, "If we are to have good students we must have good teaching, and essential to good teaching is continued study. This will in the case of most well trained college teachers inevitably develop into original research. That is, the great majority of studious college teachers will from time to time complete investigations that are worth publishing. Nevertheless there are some whose inclination leads them to think and learn widely rather than intensively in a limited field. Among these are drifters, floating at the surface over one thing after another, but here are also some of our finest teachers. It cannot therefore be claimed that the conduct and publication of researches is a necessary activity of a good college teacher. When, however, sooner or later, reports of investigations fail to appear, the University public is justified in asking what takes the place of investigation in the life of this or that teacher."

Teachers Make the University

In a recently published circular describing the Institute of Research, it is stated that: "The modern university is dedicated to research as well as to teaching. It must render to society the fruits of its scientific inquiries; and to its students it should promise instruction by scholars. Research is the tool of the scholar, and is fundamental to the work of the teacher, who, to exercise the greatest possible influence in the field, must be devoted to the advancement as well as the dissemination of knowledge. The joy and the personal stimulus to the teacher, which come from creative work, generally promote his success in the class room or laboratory, for his teaching inspires confidence and enthusiasm in proportion to his standing and prestige among men of his kind. Furthermore, since a university is an instrumentality to promote the work of scholars engaged in teaching and research, its standing is determined only by that of its component parts; if these are leaders and the creators of leaders, so is it recognized as a leader. Furthermore, 'there is no other soil in which can grow the desire and stimulus for truth that bears fruit in discoveries and in human progress comparable to that which is formed out of the common efforts and strivings of a great teacher and his students. We need in our universities to revive the notion that the primary function of the university is to teach, that true intellectual progress lies in the contact between the teacher and the student, and that research in the best and truest sense would bear its finest fruits under these conditions and by this stimulation.' "

The Professor and Progress

To a university man, and to every one who believes in the value of the finest type of higher education, it is inspiring to know that most of the great contributions to knowledge have emanated from the universities and that in many instances such contributions have been the joint product of professors and their students. In fact, not infrequently such advances or discoveries have resulted from the regular work of advanced instruction rather than from scholarly activities paralleling, but not actually a part of the professor's regular teaching duties. It is related that Sir Humphrey Davy, Professor of Chemistry in the Royal Institution of London during the early years of the nineteenth century, who was one of the foremost scientists of his day, stated that of all of his achievements no one filled him with greater pride than his discovery of the intellectual powers of his student, Michael Faraday, who succeeded Davy, and whose contributions to knowledge have been the basis for much of the development of modern electrical science.

In a recently published volume entitled, "Beacon Lights of Science," the author, Mr. Theodore F. Van Wagenen, has presented 233 brief biographical sketches of the men who, in his judgment, have made the greatest contributions to knowledge in the history of the world. Of these 233 persons, 126, or 54%, of the total, were university professors. It is significant, however, to note with the passing centuries the rapid increase in the percentage of professors who have achieved fame. This has undoubtedly resulted from the great multiplication of educational institutions during recent times. Thus, a study of the names listed by Van Wagenen indicates that in the seventeenth century, 35% of them were professors; in the eighteenth century, 52%; and in the nineteenth and twentieth centuries, 73%.

The fact that so many of the most important advances in knowledge have come from the universities justifies the plea that there be developed a closer community of interests between such institutions and those concerns which are dependent upon, and have profited by, the discoveries in pure scicence these institutions have made. The true scientist is rarely concerned with

applications of his discoveries. He seeks the truth because of his desire to learn the mysteries of nature. He has normally been self-sacrificing in his work and often has been forced to prosecute it under conditions which were most discouraging. It is rare indeed that scientific research has received adequate financial support or that there has been any real recognition on the part of individuals or corporations of the potential value of promoting research and the discovery of unusual intellectual genius without regard to the possibility of immediate financial returns to the promoter.

Business vs. Research

Four hundred and fifty years ago Leonardo da Vinci, known chiefly as one of the greatest painters of all time but who was in addition one of the greatest scientists and engineers of history, stated that, "Those who are infatuated by practice without science are like the navigator who sails a ship without helm or compass; he never knows with certainty where he goes. Practice must always be built upon theory. Study science first, then follow the practice that is born of science." Despite this remarkable advice, given long before there was any real knowledge of science or of industry, the development of our greatest industries has been based very largely upon invention and rule of thumb processes. Those responsible for the creation and promotion of modern industry have been frequently reluctant to adopt scientific methods; in fact, it is doubtful whether many leaders of industry have any real appreciation of the fact that their permanent success depends upon the application of science to the improvement of their processes and of their product, to the elimination of waste, and to the conservation of labor and materials. Recently Dr. R. A. Fessenden, who is a scientist and inventor of note, stated that "No organization engaged in any specific field of work ever invents any important development in that field or adopts any important development in that field until forced to do so by outside competition," This is a most serious arraignment of industry and, without doubt, an exaggerated one, yet doubtless it could be shown to be applicable in many specific cases. The unwillingness of men of affairs at the head of great business and industrial enterprises to spend money for investigations unless they promise certain and immediate returns indicates a lack of imagination which has doubtless interfered with the largest possible progress in those activities which are so vital to our modern civilized life.

While a third of a century ago many college professors and some others were devoting a portion of their time to research work of a fundamental character, there were few organized agencies for promoting research in either pure or applied science. At that time, even the graduate schools in the universities of America had not been well organized to promote advanced study and research. Research laboratories in the industries were as yet undeveloped. In fact, there was then a profound skepticism in the minds of practical men concerning the value of research. Many of them looked upon it as the pastime of a group of visionary and impracticable professors who were unable to make a living at any useful work.

The Modern Trend Toward Research

Within this brief period a large number of research organizations have been founded under the auspices of the federal government, of educational institutions, or industrial corporations or associations, and of private interests, some of which are devoted to the study of pure science and its applications; and others, to the applications of existing scientific knowledge to the technical industries. While there is still much skepticism concerning the need for research, or its value, yet many of the industries are alive to its importance and some of them have undertaken its promotion by one means or another. A few of the larger industries have established splendidly equipped and well manned laboratories which have done much for the advancement of the industry concerned. Other organizations have developed laboratories ostensibly devoted to research but really employed in routine testing incident to the manufacture of their product and to the development of new machines, products or processes. Many such industrial labora-

tories have failed to produce the results anticipated through the lack of an adequately trained personnel and because of the pressure of the management for immediate results of a tangible nature. A laboratory of the "trouble-shooting" variety is a very useful institution in any organization, but it is very rare indeed that the results secured from such a laboratory are of more than temporary value.

The Lehigh Idea

Through the development of certain government agencies such as the Bureau of Standards, the Bureau of Mines and of the various agricultural and engineering experiment stations of the land grant colleges, and through the more effective organization of the graduate schools in the better universities, many valuable contributions in pure science have been made and possibly an even larger number in the applications of science to the problems which have been produced by our modern civilized life. The recent organization of the Institute of Research of Lehigh University makes it the latest addition to the rapidly growing list of these agencies for the promotion of research. It differs from those previously organized in that it is designed to encourage research and scholarly effort in every field of knowledge represented in the University curriculum. The breadth of its conception leads me to hope that in time it may come to be recognized as an outstanding agency for the training of men in research work and for its contributions to knowledge.

In view of the arguments which I have presented to justify the conduct of research work in the University, the chief reasons for the organization of the Institute of Research of Lehigh University may be briefly stated as follows:

(1) *The stimulation of teaching;* for, as previously stated, good teaching and productive scholarship, whether it be in the arts or in the sciences, generally go hand in hand.

(2) *The training of men in the methods of scientific research* is quite as important a function in an institution of higher learning as is the training of men for any other of the various duties of life. While it is true that a genius is born and not made by any purely educational process, yet the genius must be trained and his talents stimulated. Undoubtedly even a man of very ordinary qualifications may be so trained as to enable him to do creative work of no mean importance. If the colleges do not produce men capable of leadership in every kind of intellectual activity, where can we turn to secure these men who are so essential to the maintenance and further development of modern society?

(3) *The advancement of knowledge is,* of course, one of the principal purposes for the founding of any research organization, yet in the University such advances may be considered as the by-product of the educational activities which it is organized to promote.

(4) *To enable the University to cooperate* with business and industrial concerns or with municipalities and governmental organizations in the solution of problems fundamental to their progress and enduring success. I desire particularly to emphasize the importance of such cooperation both to the institution and to those individuals or organizations which cooperate with it. Cooperation is stimulating alike to the college professor, who thus comes into intimate contact with the important and even vital problems and needs of society, and to those who cooperate with the institution because thereby they are led to a recognition of their responsibility for the encouragement of these agencies which have done so much to make their own progress possible.

Results Property of Lehigh

The conditions under which the University is willing to cooperate with individuals or organizations are fully stated in the circular describing the organization and functions of the Institute of Research. I recognize that many business and industrial organizations may be reluctant to enter into arrangements with the University for cooperative research under the conditions laid down, the chief one of which is that the data secured shall be the property of the Institute of Research and that these data shall be given freely to the world. Most industrial organizations are unwilling to spend money unless they can thereby secure some tangible benefits to

themselves which are not available to their competitors. Most of our industrial leaders still believe in that mythical thing called a trade secret, yet, as the Editor of *Power* recently stated, "Discoveries have a way of wandering from home, so that it is indeed an unusual organization that can keep its news within its family walls." What we need is to develop a much finer spirit of idealism in our business relations and a willingness to share with others our accumulated knowledge. Such idealism, instead of harming a unit in any large industry, actually tends to stimulate the industry as a whole through a reduction in costs or the improvement of the product, or an increased confidence in and demand for the product.

In conclusion I wish to express the hope and the belief that sometime the Institute of Research will come to be recognized as a benefactor of mankind. Because of financial limitations, it may be years before it can function effectively, but some how and some time it will be accorded the recognition which we desire.

"NEW SEATS FOR OLD"

A FURTHER TALK ABOUT LAFAYETTE GAME TICKETS FINANCING ADDITIONAL STADIUM STANDS

SO MUCH INTEREST has been excited in regard to the increase of seating capacity in Taylor Stadium that it seems advisable to discuss this matter of Lafayette game seats thoroughly and prepare the way for a definite decision in this matter. Some fellows have written in, wanting to buy bonds right away, but unfortunately we are not that far along with the project.

Allotment of Seats Last Fall

Perhaps as a preliminary it might be well to outline as briefly as possible, just how seats for the Lafayette game were allotted this year and the plans for future allotments. Early in the fall it became apparent that the demand was going to be heavy so the number of first choice seats was limited to two for any alumnus or student—with the exception, of course, of trustees, players and coaches. However, before the applications closed on November 12 it became distressingly apparent that the 6514 seats which comprised our share of the seats on March Field were going to be quite insufficient to take care of the demand. We decided that all first choice applications for two seats should be filled for alumni and students and that the second choice applications must be cut deeply, giving precedence to those men who put in second choice applications only and following with applications for second choice seats from men who had made a first choice application. In the case of students we cut each to one cheering section seat or two first choice tickets with a limit of two for second choice seats, the same as for alumni.

Each Man's Record Checked

After checking up the results we found we were still over the limit of seats available. Accordingly we checked every alumnus application to determine whether the applicants had ever shown any interest in Lehigh other than the interest we all had of obtaining an education at half-cost or less. If we found that a man had subscribed to the Endowment or to the Alumni Memorial Fund or had paid dues or even a BULLETIN subscription at any time during the past three years, or in fact had shown any sign of interest we passed him. (Sometimes he had only a very "bald-headed

six.") The others, and they were not many, I am glad to say, we put to one side. We would have liked to have sent them seats, but when it came to a choice between them and the men who support the college there was only one answer. On the recheck we found we could just make ends meet. I might say that in the Class of '24 we made no distinction as they had not been out of college long enough for their short alumni record to be a fair test. However, one only has to look at their record of dues paid and subscriptions made to the Endowment Fund to realize that most of the 1924 applicants had already nailed their colors to the mast.

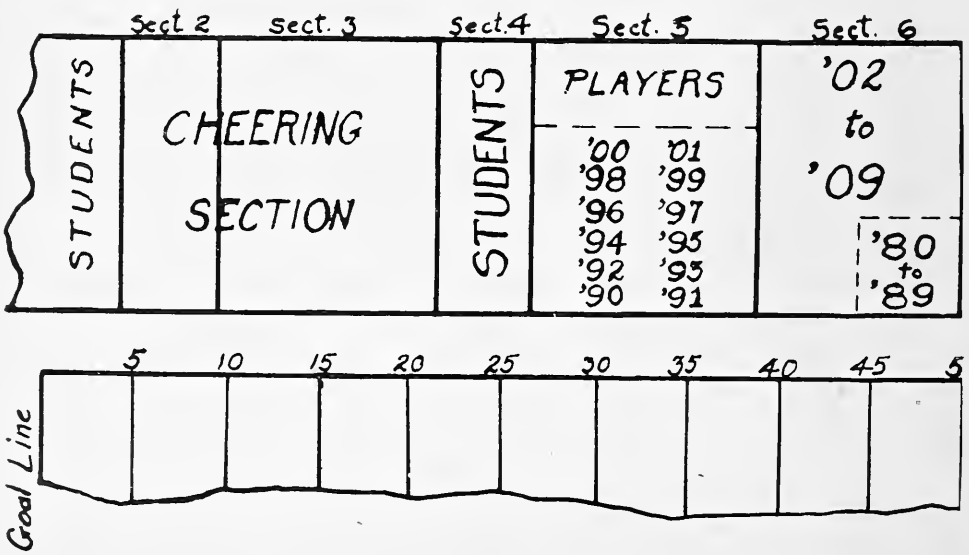
All applications were arranged alphabetically first, so as to check up any duplications in cases where someone had used another fellow's name without authority. As we have the signature of every active alumnus, it was not hard in such cases to tell which was the bona-fine application. Then the applications were rearranged by classes and we proceeded to fill the first choice alumni applications after first setting aside a block of seats for the students. The diagram below will show exactly how the classes were seated. For this year we tried to put faculty, trustees and the older alumni as near the center of the field as possible. We just managed to get the first choice alumni and student seats within the limits of the goal lines. Second choice applications where the man was not going to occupy any seat himself came next and were limited to four seats. Second choice applications where a first choice had already been filled came last and was limited to two. To outside donors to the Endowment Fund, two, or where the gift was merely nominal, one seat was alloted.

Allotment of Seats Next Year

Next year, having a careful record of where each man got his first choice seats this year, it is our intention to shift him approximately ten yards either towards or away from the center, depending on his location last fall. This shifting will be done by classes rather than individuals, as the attendance, of course, does not include the same individuals each year. For instance, 1924 will move up beyond the ten yard line and 1900 will go down to bottom of the class and start in on the goal line. In this way each class will move each year and about two-thirds of the time will have their seats within the twenty-yard line, PROVIDED—that the attendance doesn't grow so rapidly as to push the first choice seats away back of the goal line and perhaps eliminate second choice seats entirely.

New Seats Necessary

That brings us to the crux of the situation. If we alumni want good seats at the Lafayette game, we will have to build them. With the exception of this one game coming every two years, our present capacity has been sufficient. In fact this year was the first time that even the Lafayette game showed applications for seats in excess of the number that we are able to provide in Taylor Stadium. There are seats enough even now for the alumni and student demand but half of them are considered poor seats. Five thousand more seats between the goal posts would be eagerly snapped up by our alumni and the Bethlehem supporters of the team. And the football fans of our community who loyally support the team throughout the season should have seats for the Lafayette game. But—the University has no money to build



them and cannot afford to exhaust its credit by borrowing money for this purpose. A bond issue based for security entirely on the good faith and good management of the Board of Control of Athletics seems the only way. Each bond to carry yearly coupons exchangeable for one seat between the twenty-five yard lines. Principal of bonds to be paid in 20 years, the income from the other new seats which are built and sold to be used to amortize these bonds. If holder of bond cannot attend a game in any year or years during the life of the bond, he will be privileged to turn in his seat for sale by the Board of Control. If removal or death prevents his use of the coupons, his bonds will be bought in from the funds set aside for amortization. No transfer of bond, coupon or seat to be permitted except through the Lehigh Board of Control of Athletics.

Such a plan will work if the Alumni and local supporters of Lehigh really mean what they have been writing and saying during the past few weeks. The number of the seats built will of course depend on the amount subscribed. Each bond must be of such a par value as to build approximately five seats. We are not yet ready to determine this point for we have no plans and estimates. As yet all we have is a sketch of an idea, but such information as we have obtained indicates that seats cannot be built for less than $12 each.

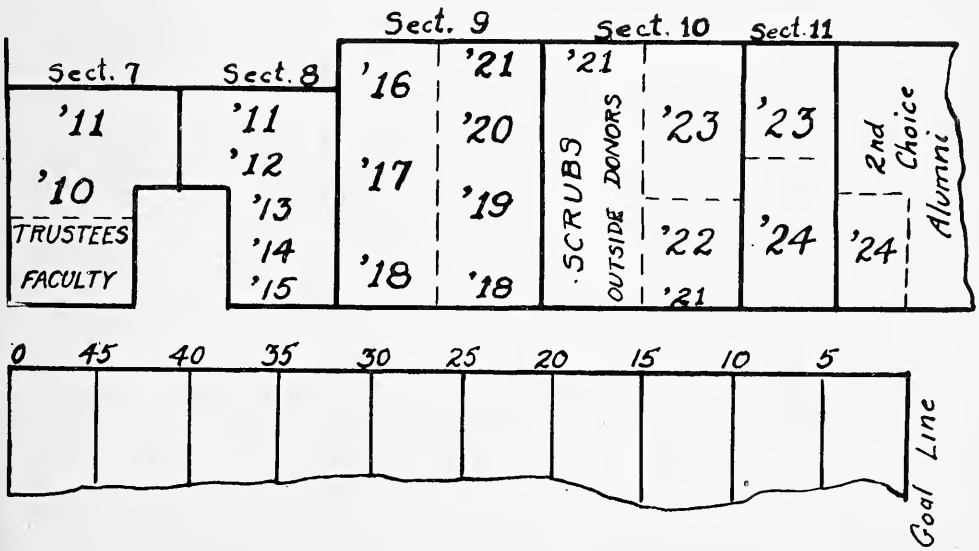
The Board of Control of Athletics must wrestle with this problem during the next month. Probably they will try a postal questionnaire to determine how much of a response they would have to such a bond issue. If there is no real and insistant demand among the alumni and local supporters for better seats, the Board would be foolish to add to its burdens by trying to finance such stadium additions. If the demand exists, the financing will take care of itself almost automatically.

One man who writes enthusiastically about this scheme tells us not to forget to take care of the alumnus who cannot afford to buy bonds. We don't intend to forget him. In fact this plan gives us four new seats for him to every one that goes to a bond holder. Also we ought to be able to take care of the fellows who, outside of a Lafayette game, have not had their interest in Lehigh aroused. However, then as now, these must take their place behind the ones who bear the heat and burden of the day, who sacrifice in order that Lehigh may do her work, who are helping the younger generation to an education even as they were helped. And every real man will recognize that this is only fair.

"Okey" Heads Football Officials' Association

Walter R. Okeson, Secretary of the Alumni Association of Lehigh University, was re-elected President of the Eastern Association of Football Officials at the annual meeting in New York last month.

During the past season "Okey" was officiating every Saturday except on the day of the Lafayette game, when he begged off. He started the season by umpiring the Rutgers-Villa Nova game in September and ended it by refereeing the Army-Navy game the Saturday after Thanksgiving. In between he worked in the Princeton-Amherst, Yale-Georgia, Syracuse-Boston College, Harvard-Dartmouth, Syracuse-Pitt, Harvard-Princeton, Cornell-Dartmouth, and Columbia-Syracuse.



CHEMISTRY, CROSS-WORDS & PERSONALITY

Last Month's Puzzle Picture of 1900, Our 25-Year Reunion Class, was too Easy, so the Lehigh Chemistry Department has Concocted One for Us.

THIS STORY is about a chap that was born and grew up on the Lehigh campus. Naturally, he's quite a Lehigh institution. He's a good natured, friendly old fellow, when you get to know him, but sternly severe with those who take him lightly or fail to measure up to his ideals. Casual acquaintances sometimes size him up as a high-brow and dull company. But his friends know that he's always a sympathetic listener and inspiring chum. He can hold his own in the most distinguished group of scholars, yet occasionally he dons a flannel shirt, takes a "chaw" of cut plug, and is just as "hard" as they make 'em. He is a driver, and his men work and sweat under his orders; but when they have rung out at night, he is just in the midst of his own day's work.

Who is this bird, you ask? Well, he's not a person at all. Rather, he's a personality, —the personality of the Department of Chemistry of Lehigh University. He is to that department as Uncle Sam is to the United States or as Johnny Bull is to Great Britain. He is the imaginary personification of a unique and characteristic spirit. And he is responsible for this month's cross-word puzzle.

'00 Easily Spotted

As intimated in the head-lines, the puzzle picture printed last month was easy picking for 1900. At least a dozen members of the class were able to recognize nearly every face in that handsome aggregation, and a couple of '01 men did almost as well. So we decided that this month's puzzle should be a little more difficult, and just as we were ransacking our collection of old-time photographs, in comes "Shorty" Long, '13, Associate Professor of Chemistry, with a handful of what appeared to be examination papers.

"These cross-word puzzles of yours are all right for the few fellows that happened to be in college when the photograph was taken," he remarked, "but how do you expect the rest of us, who perhaps never laid eyes on most of those fellows, to dope out who they are? As a conscientious editor you should confine your copy to subjects of equal interest to all your readers and print only articles of universal appeal."

So saying, he laid down his samples, which proved to be, not examination papers, but cross-word puzzles, each one made up of chemical terms by a sophomore student in advanced chemistry. Some of them contained words that only a Ph.D. could pronounce, but others were made up of more or less common chemical words which have a familiar ring to anyone who was ever exposed to "elementary chem." Realizing that Shorty's argument was a good one and that practically every Lehigh alumnus has penetrated the realm of the beaker and bunsen burner far enough to recognize the odor of hydrogen sulphide, we selected the puzzle reproduced here. Now, let's see how much of your chemistry you remember. If you get stuck, you'll find the answer on page 22.

Puzzles With a Purpose

No doubt some of you, recalling your own struggles with Freshman Chemistry, will feel that the subject was puzzling enough without complicating it with cross-words. Let us hasten to assure you that there is no intention of making cross-word puzzles a feature of the chemical course. This was a single experiment, designed to interest the student in the subject and to make him employ a little different type of thought than the ordinary lesson calls forth and to offer opportunity for the exercise or originality. In building his puzzle, each man felt that he was doing something never done before, and felt for the first time, perhaps, the thrill of exploration into little known fields that is the stimulus of the true chemist.

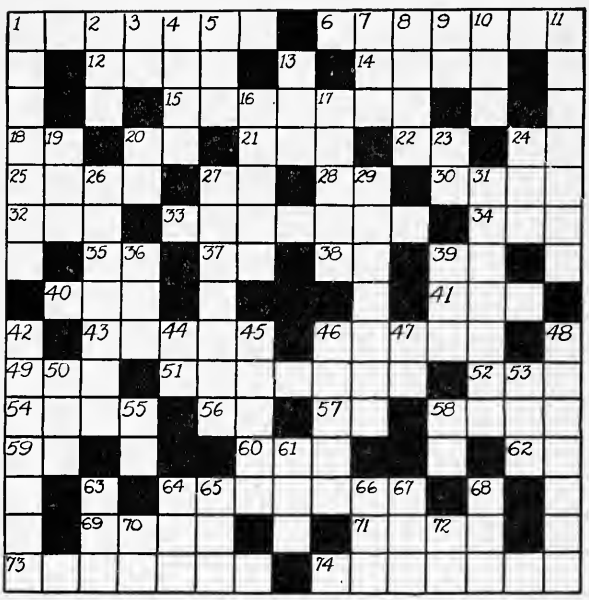
Aside from such theoretical benefits, there was at least one tangible result that justified the experiment. The author of the puzzle reproduced here is a student whose chemistry grades up to this time were below 50. "No wonder," says some cynic, "he spends his time doing puzzles instead of studying!" But wait a minute. This boy was complimented on the excellence of his puzzle, and one of his teachers tried to point out to him that he has an aptitude for chemistry a bit off the beaten track, and that he should consider this in deciding on his work after graduation. When this chap realized that there are other fields for the chemist beside the analytical lab, he was inspired with new enthusiasm. He came to visualize himself in the editorial or advertising department of some chemical company, and he liked the prospects. Result, a marked improvement in his chemistry grades.

All this brings us back to the old chap we introduced and then left standing back there in the first paragraph. Now perhaps you'll begin to see why to us who know it, the Lehigh Chemistry Department has a personality; any why we picture the personality as we do. Here we have a group

of men, all expert and highly trained chemists, who are human enough to see the good in the humble cross-word puzzle and apply it to the teaching of chemistry. Here we have men who are conducting some of the most involved research problems in their laboratories, but who never lose sight of the fact that boys will be boys.

A Chemical Christmas Party

Just before the Christmas holidays, there was a big meeting of the Lehigh Chemical Society held in one of the laboratories. Every student of chemistry and every faculty member of the department was present. The laboratory was transformed into a banquet hall by ribbon streamers and Japanese lanterns. Tables were set with casseroles for dishes, and beakers for cups. You should have seen that meal disappear! Perhaps you fancy the menu was scientifically balanced with the correct proportions of proteids, fats, mineral salts, vitamines and calories. Well, it wasn't; it was scientifically balanced to warm the soul of each of those young Indians, and make him glad he was a "chemist." First there was soup and meat, with spuds and peas to fill the aching voids; then the feast began: A big dish of fruit cocktail, sweet and juicy; a great slab of home-made mince pie, hot and fluffy and rich; half a



HORIZONTAL

1. To add water to a substance; A base.
6. Sets fire to; Heats.
12. Speed of Reaction.
14. Every.
15. Rational.
18. Perform.
20. Afternoon (abbr.).
21. Before (poetic).
22. Therefore.
24. Symbol for a common metallic element.
25. A prefix used in connection with reaction heat, to denote taking on of heat.
27. Symbol for an alkali metal.
28. An exclamation.
30. Basis.
32. French word used before lady's name to designate maiden name.
33. An element in Group IV of the Periodic Table.
34. Saint (abbr. French, feminine).
35. Formula for a poisonous carboniferous gas.
37. Till Sales (abbr.).
38. Symbol for Thallium.
39. A college degree.
40. A metal occurring largely in Great Britain.
41. An Herbivorous Mammal.
43. Member of a class of hard, heavy lustrous elements.
46. Shades.
49. Girl's name.
51. Latin name for an element forming readily hydrolysable salts.
52. Water in the solid state.
54. Substance formed by the reaction of an acid and a base.
56. For example (Lat. abbr.).
57. Morning (abbr.).
58. The Autocrat of Russia.
59. Symbol for Thulium.
60. Possessive personal pronoun.
62. Symbol for one of the Halogens.
64. To compare volumetrically to a standard; an operation much employed in volumetric quantitative analysis.
69. Nothing.
71. A Mohameddan ruler.
73. A Halogen.
74. Neither liquid nor solid.

VERTICAL

1. Becomes rigid.
2. Arid.
3. The Sun god.
4. The smallest particle of matter entering into a chemical reaction.
5. Prefix denoting third.
7. A form of colloid.
8. Negatives.
9. Suffix which when added to an element denotes that it is of higher valence than if another suffix were used.
10. Definite article.
11. Substances in Solution.
13. By means of; through.
16. Handles.
17. Combine chemically.
19. Unit.
20. A River in Italy.
23. A conjunction.
24. A small cottage.
26. Pertaining to tenths.
27. Salt of Nitric Acid.
28. Perform.
29. An element.
31. The flow of liquid through a semi-permeable membrane separating solutions of different concentration.
36. A number.
39. Do.
42. Annoy; Stir up.
44. Same as 37 horizontal.
45. Source of illumination.
46. A diadem.
47. A State (abbr.).
48. Pertaining to iron in the bivalent state.
50. A dyke.
53. Part of a Locomotive.
55. Preposition.
58. Symbol for an element whose salts give a color reaction with Hydrogen peroxide.
61. A period of time.
63. A class of Dyes.
64. Prefix denoting three.
65. A dissociated charged particle.
66. A beverage.
67. A river in Germany.
68. Spanish for Gold.
70. A printer's measure.
72. That is (Lat. abbr.).

dozen varieties of home-made cakes with thick luscious frosting; jam and preserves of all flavors and colors, all the home-made candy you could eat or carry away with you, and coffee and good cigars. Do you wonder that when they could talk they called for "Dief! Dief!"—the man who rounded up all those sweetmeats from faculty wives, the man who hung the decorations and who conceived the idea of the party in the first place? Do you wonder then when Prof. Diefenderfer ('02) tells them next day in class that he wants them to study up for a quiz, they all "take a cut at the movies" that night to make a good showing for him?

The Lehigh Chemical Society is the oldest undergraduate technical society at the University. Its membership includes every student of chemistry at Lehigh and every member of the teaching staff. It is unique in the fact that every member pays dues regularly, every year. Within a month after the opening of college, every chemist has chipped in his society dues. Why, it's almost as important as paying tuition! Now perhaps you begin to see why, to us who know it, the Lehigh Chemistry Department has a personality.

Teaching Comes First

There are fifteen members of the teaching staff in this department, of various ranks. There are also fifteen teachers, for it is one of the principles of the department that its first and most important job is instruction and even the most elementary courses are taught by men whose profession is primarily that of teaching. Graduate students are not called upon to conduct less important classes in their spare time, for there are no less important classes. If the department needs some one to teach a class, a teacher is hired on the basis of his ability to teach, and if he can find time to conduct research work on the side, why, good for him—he fits.

Perhaps it would be an exaggeration to say that any man of the fifteen could take over the classes of any other, and conduct them just as well, but it is a fact that there is no barrier between the physical chemist, the industrial chemist, the analytical chemist and the organic chemist. The Lehigh idea is that chemistry is a science which includes the fields of all those specialists and unless the student is as much at home in one branch as the other, his work will eventually lead him to a point where he must call for help. Therefore, the Freshman chemist is taught his fundamentals in the light of the application that he will make of them as a Senior and the Senior recognizes the application of his physical chemistry because it was pointed out to him as a Sophomore. It is a principle which calls for considerable versatility on the part of the teachers.

Every professor in the Chemistry Department at Lehigh is appointed advisor to a certain number of Freshman "Chemists." Once a week, each of these boys drops in for a chat with his particular mentor. It is surprising how much practical help the faculty members are able to give these youngsters by a friendly, confidential talk. Sometimes it's a case of a chap who is neglecting his health or his eyesight, and is handicapped thereby; sometimes it's a lad who is trying to work his way through college and has loaded himself with more work than human flesh can stand; sometimes there is simply a need for encouragement, or mental readjustment. Always, the trouble comes out in a chat where student and teacher call each other by nick-names, and generally the path is made a little smoother.

The personality of the Department of Chemistry is one which makes a lasting impression. Students go out from the course unconsciously imbued with the spirit of hard work, and cheerful service. The chemist alumnus may forget to stop in the Alumni Office to pay his dues, but he never fails to stop in to see all the "fellows" in the Chem. Building. Out on the job, when he needs expert advice, he turns instinctively back to the campus, with never a thought that he is asking for consulting service, a marketable commodity, without thought of paying for it. And the advice is always cheerfully given, without thought of charging for it, for that's just the personality of the Department.

Perhaps you would be interested in some of the many research problems that are being attacked by members of the Department. Maybe you'd like to know about the "unbreakable" cigars they have perfected, the discoveries that have been made about paints and patent leather, and linseed oil and coal, and cement and dyes. Well, all that is a separate story. This time, we've simply tried to acquaint you with a unique personality, a "chap" who was born and grew up on the Lehigh campus, and who has become a Lehigh institution.

FACULTY MEMBERS ATTEND CONVENTIONS

While the undergraduates were enjoying the Christmas holidays, a number of our Faculty members were representing Lehigh at the sessions of various scientific and learned societies. Among them was Professor Hughes, who read a paper at the American Philosophical Association, at Swarthmore, upon "Ethics in terms of Symbiotic Trends," and also attended through the week the meetings of the American Association for the Advancement of Science at Washington. Professor Stanley Thomas, of the Department of Biology, also attended the sessions of the latter society. Professor Miller attended the sessions of the Geological Society at Ithaca, and Professor Gipson that of the American Historical Society at Richmond, Va. Professor Drown represented the University at Erie at the meeting of the Pennsylvania Education Association and took an active part in several sessions.

COMMON SENSE IN EDUCATIONAL PSYCHOLOGY

By PERCY HUGHES, A.B., A.M., Ph.D.
Professor of Philosophy and Psychology, Lehigh University

FROM TIME TO TIME we read of some novel application of psychology to college education. Many of the "stunts" are so sensationally colored, for publicity purposes, that the average reader comes to regard the whole subject of psychology as applied to higher education with skepticism. Perhaps a brief synopsis of what Lehigh does, or tries to do, in applying psychology may be of interest to BULLETIN readers, for we are endeavoring to keep pace with the modern application of scientific method to the education of young men who come to us.

Tests for All Freshmen

Psychology introduces newer standards of precise *measurement*. To measure accurately the ability of a student to carry on our work is an ideal which we only approach, but it is established that psychological examinations give a prediction of this ability that is between two and three times as reliable as his high school record.

All the members of the present Freshman Class have been given the test prepared by the National Research Council and the American Council for Education, and which already has been given to over 30,000 college Freshmen. We do not use it to select our students, but to help us in studying what men we have admitted. In this way a more precise judgment may be formed as to whether a man is working up to his present effective level of work.

These psychological tests also give an idea in what kinds of work a man is most fitted to excel. In this respect we have NOT advanced to the point where we can confidently advise a man to take this course or that. Too many factors enter into consideration to admit of precise prediction here. But we can often, through the psychological record, direct the student to the underlying cause of his failure, as for instance, his deficiency in reading.

Most college graduates entertain a strong suspicion that the examinations they have taken at college were not a precise *measure* of their capacity, and students of education are coming to agree that the suspicion is well grounded. For example, few examinations are prepared and corrected with as much care as are those of the College Entrance Examination Board. It is a disturbing fact that percentage of failures vary in a given year from 25 to 61 per cent., even in so precisely standardized a subject as algebra, in these examinations! No other cause can be found for this, except that the examinations one year are far harder than in another year. Much more is this likely to be true in the examinations prepared by any department in college under the old standard; but professors seldom have taken this into account.

At Lehigh we are taking this into account. Professors are getting used to thinking in terms of "the normal distribution curve." We have abandoned the old "percentage" grades for reports. At the Faculty Educational Club, Wednesday, January 14, four departments presented illustrations of the *new type* examinations, in history, physics, integral calculus and psychology. In these *new type* examinations the factor of chance is greatly reduced by modelling them upon the "multiple question—objective" standards used in the so-called psychological tests. In these *new type* examinations it has been found that the results in one examination conform closely with those obtained in any other.

So we are making progress in applying to college men more precise *measures* of ability and of success in college.

Another goal that psychology puts before the college professor is derived not from the engineer but from the physician. It is the ideal of mental diagnosis and mental health. We realize that a man's work depends not only upon his intellectual capacity but upon his *will*. We can not measure the will, but we gain by realizing the very many factors that psychology shows combine to produce will in any one. The problem is different with every student, and no general rules apply.

Mental Consultation Service

This psychological point of view is always present in the mind of the Dean in his efforts to help delinquent students out of their troubles. In certain cases the problem is referred to the Department of Psychology, and students are encouraged to seek the consultation services of that department just as readily as they go to the University Health Service when the body is not working just right. This policy is followed in many colleges, more than one University employing one or more phychologists for no other purpose than to deal with such student problems.

In such cases the psychologist is aided by his measures or tests, but relies fundamentally upon his concepts of stimulus-response, of habit, of bodily effects upon mental conditions, and of emotional disturbance. Of course, without cooperation from the student, nothing can be done, but this usually is given. For the future we anticipate extending our use of psychological tests in selecting the most promising student material, and in comparing the general level that seek different courses or that come to Lehigh from one year to another. The appreciation of psychological standards in precisely measuring student performance is certainly growing among the Faculty. There has been this year far more interest in our "psychological consultation hours," than ever before, and more use made of them.

ENDOWMENT CAMPAIGN

ACTUAL RESULT IN DOLLARS FOR THE FIRST YEAR EXCEEDS OUR FONDEST EXPECTATIONS—A FURTHER DISCUSSION OF THE "LEHIGH PLAN"

PLEDGES are one thing, payments are "something else again." Usually they are something less and somewhat slower than the pledges indicate. Not so, however, with the type of pledges we have. Advance payment rather than delay is the order of the day with our subscribers. As a result we find that at the end of the first year of our Campaign we have paid in not 25% as was to be expected, but 40% of the total our alumni pledged themselves to pay over a period of four years. In addition to the amount paid in by the alumni and trustees, $500,000 has been received from the Carnegie and Rockefeller Foundations, and $140,000 from other outside donors. So of the $2,300,000 of pledges so far received, $1,300,000, or more than 56%, has been paid in to the University.

You will note in the table presented this month that this wonderful result has been obtained in spite of the fact that a large number of men have not yet started on their payments. Many of the subscribers, especially those whose subscriptions were obtained within the last six or eight months, set 1925 as the date of their first payment, and a number wrote their pledges to be paid as convenient before January 1, 1928, which date winds up our four-year campaign. In the light of these facts the results in dollars seems all the more encouraging and remarkable.

The two columns in the table which show the number of men in each class who have begun their payments and the total they have paid are published in order to illustrate the type of report each class will make at every Alumni Meeting in the future, beginning next June. During the remainder of the Campaign these amounts will be large, because of existing pledges on which payments will be made. Not only will the amount paid in to Lehigh during the preceding twelve months be given, but the total for all preceding years for that class will be reported. When the Campaign is finished if the "Lehigh Plan" goes into effect, these reports will continue and the class total grow from year to year.

This so-called "Lehigh-Plan" is very simple. Those interested will pledge themselves to give *something* each year to Lehigh, with a minimum of say ten dollars. Out of this comes first class dues, which will be remitted to the class treasurer, thus insuring money for reunion and other purposes, then alumni dues and BULLETIN subscription, which will go to the Alumni Association, and the balance will be turned in to the University each June as a class gift. In the case of Life Members the income from their Life Membership payment will be credited to each member every year as part of his payment.

How Yale's Alumni Help the University

I have before me the report of the Treasurer of Yale University for 1923-24, in which there are interesting figures on the Yale "Alumni University Fund." This was started in 1890 and during the early years grew slowly, for the idea of the alumni as a whole giving to their college was a new one in this country and in fact an entirely new note in the history of education. Yale's alumni, in their giving, put no restrictions on the use of the money and in consequence the college was able to use whatever part of each yearly gift as was necessary to clean up the deficit for that year. The balance was then put into permanent endowment. The value of this plan was never so well shown as during the war when Yale faced each year tremendous deficits. Each year the alumni, knowing in advance the estimated deficit, subscribed so generously that not only was the deficit met, but a goodly sum left over for addition to permanent endowment. These deficits are still great, and during the past collegiate year about three quarters of the alumni gifts went to assist in financing Yale's educational program for 1923-24, and only one quarter to permanent endowment. Yale, like

STATUS OF PAYMENTS BY CLASSES UP TO AND INCLUDING DECEMBER 31, 1924

Class	No. of Members	No. of Subscribers	No. Who Have Paid on Subscription	Total Subscribed	Amount Paid
1926		3	1	$ 240.00	$ 25.00
1925		8	4	1,165.00	96.00
1924	281	75	45	7,461.00	988.50
1923	339	128	91	13,371.00	2,845.75
1922	240	122	82	16,355.50	4,494.00
1921	204	118	78	14,730.00	2,793.64
1920	215	101	66	15,265.00	4,430.75
1919	163	67	50	9,458.00	2,465.75
1918	149	75	55	11,381.00	3,538.72
1917	186	68	48	11,021.00	3,130.26
1916	153	68	45	7,831.00	2,438.70
1915	151	48	35	8,580.00	1,676.25
1914	137	65	46	11,163.00	2,464.54
1913	193	72	44	15,015.00	3,418.75
1912	181	68	43	16,585.00	4,149.00
1911	144	68	46	16,705.00	3,814.39
1910	171	87	71	24,730.00	6,388.00
1909	185	69	49	18,210.00	4,428.00
1908	164	69	50	25,210.00	9,860.36
1907	142	64	48	24,260.00	4,857.00
1906	129	62	50	27,110.00	8,567.50
1905	128	55	40	15,761.00	3,823.00
1904	114	58	46	26,835.00	9,409.50
1903	120	57	49	28,835.00	9,854.75
1902	66	23	18	28,340.00	8,835.00
1901	66	32	27	32,525.00	10,847.50
1900	90	29	22	41,425.00	25,270.00
1899	52	28	22	119,000.00	108,217.50
1898	94	43	34	42,340.00	7,284.25
1897	82	39	33	24,135.00	12,695.00
1896	110	54	41	77,350.20	26,002.70
1895	146	62	53	58,437.00	23,953.24
1894	74	45	40	43,835.00	19,253.00
1893	101	37	30	15,270.00	7,342.50
1892	54	30	27	16,045.00	9,960.00
1891	52	36	33	14,715.00	11,200.00
1890	68	35	28	37,940.00	10,471.25
1889	71	30	28	136,160.00	48,135.00
1888	73	29	25	217,858.00	55,093.00
1887	64	20	17	60,125.00	31,358.33
1886	57	15	14	24,050.00	12,605.00
1885	38	10	9	4,160.00	1,535.00
1884	28	12	12	8,025.00	5,047.50
1883	31	19	16	29,850.00	18,412.50
1882	11	5	5	2,600.00	800.00
1881	9	2	2	700.00	370.00
1880	25	4	4	1,300.00	1,300.00
1879	18	4	4	2,250.75	1,650.75
1878	22	5	4	6,400.00	5,700.00
1877	20	7	6	3,610.00	2,635.00
1876	20	3	2	1,500.00	100.00
1875	8	5	5	12,850.00	12,600.00
1874	4	4	4	1,155.00	655.00
1873	12	2	2	10,025.00	10,025.00
1872	4	1	1	1,000.00	1,000.00
1871	3	1	1	6,000.00	6,000.00
1870	3	1	1	1,000.00	350.00
Trustees and Officers who are not Lehigh Alumni		5	4	173,500.00	62,250.00
Outside Donors		426	405	176,660.00	141,672.70
	5,465	2,778	2,161	$1,799,413.45	$ 800,584.83
Rockefeller and Carnegie Foundations				500,000.00	500,000.00
				$2,299,413.45	$1,300,584.83

most other colleges, is lacking in the proper endowment, but her alumni are doing much to enable her to continue and expand her work in spite of this lack.

The exact figures for the past year show 9,484 contributors to the Yale "Alumni University Fund," with a total in gifts of $149,283.25 from reunion classes, $166,657.79 from other classes, bequests to principal of $1,143.92 and interest on Principal Fund of $100,680.01, making a grand total of $417,674.97. Out of this came as a first charge the expenses of the Association amounting to $21,938.21, and the balance was divided as follows:

Given to University for Income	$292,689.24
Added to Principal of Fund	103,047.52

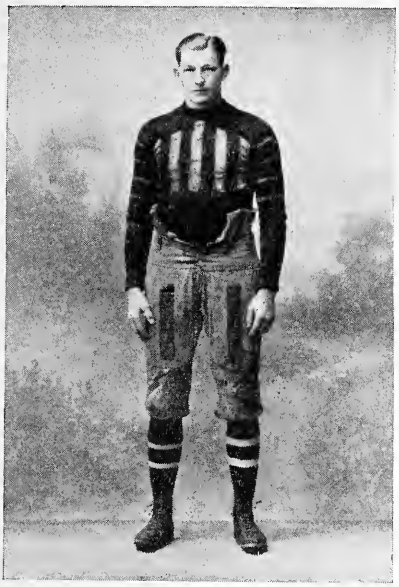
A summary of the record of this Association since its organization follows:

Total receipts from contributions and bequests	$ 4,975,225.40
Interest on Principal of Fund	818,688.98
Total	$ 5,793,688.98
Expenses	174,842.73
Net Receipts	$ 5,619,071.65
Given to University for Income	$ 3,163,816.51
Amount of Principal Fund, June 30, 1924	$ 2,455,255.14

Lehigh can start her yearly giving plan in the fall of 1927 with almost if not quite as much in the Greater Lehigh Fund as Yale's alumni had in their permanent fund last June. We cannot of course hope for any such number of subscribers or such large yearly giving as Yale with her large alumni body and years of steady effort has reached. But we should be able to get off to a flying start and perhaps from the very beginning do as well in proportion to our numbers as Yale is doing after thirty-five years of persistant work. For we will benefit, as all American colleges are benefiting, by Yale's path-finding in this all important matter of alumni giving. We will have the advantage of a well formed conception of alumni duty and responsibility which is the outcome of the work of alumni associations in hundreds of colleges; and finally we have already developed among ourselves a spirit of giving to our college that will stand comparison with the best to be found among the alumni of American colleges.

This spirit has been strongly evidenced in the past two weeks. Men who would not pledge themselves for more than one year, but who gave generously in 1924, have unsolicited already sent in checks since January 1, equal to the total amount they pledged and had already paid (one check was for $10,000). With these checks have come letters with such expressions as this, "I hope to keep this up for many years;" "Be good to me and I may do this every year;"—some of the expressions serious, some of them jovial in character, but all with the same deep loyalty behind them. Other men having completed their subscriptions by payment in advance of the dates set on their pledges have accompanied their last payments with letters stating they hoped soon to make a second subscription. Others who found themselves unable to make a pledge when approached during the early part of the Campaign are now sending in their pledges. However, we cannot expect many unsolicited pledges. Until we get class organization effected there will be no great influx of new subscriptions.

What the future holds for Lehigh cannot be surely foretold, but the results of the first year of our work for a Greater Lehigh cannot help but make each alumnus just a little cocky in his thoughts and talk about that future. Here on the campus we can feel the wheels go 'round and realize that the college is already gaining headway under the impetus of the alumni support of President Richards' persistent effort. Well, "let her ride!" There's no speed limit on the educational highway. Fine as the scenery may be on either side, it is as nothing to those vistas beyond. We see them in our mind's eye now. May they soon be a part of our daily landscape.



HOWARD E. MERRILL

"Hoddy" Merrill, Veteran Tackle, Elected Captain of 1925 Eleven

By the unanimous vote of his teammates and with the hearty approval of the student body, Howard Elwood Merrill, the six-foot tackle who has held down that Varsity berth for three years, was chosen to captain the Lehigh football team for the season of 1925. Merrill made the team in his Freshman year, having previously attracted attention in scholastic circles by his star performance at tackle on the Mercerburg Academy team. His home is in Garrett, Pa. He is a member of the Sigma Nu fraternity.

"Hoddy" is the third tackle to be honored by election to the captaincy of a Lehigh team in four seasons. "Poss" Greer, who led his team for the last time against Lafayette this past season, was fullback, but his predecessor, "Bill' Springsteen, was a tackle, as was "Art" Cusick, captain during the season of 1922.

Merrill is a tall, rangy man, weighing 196 pounds. He played in hard luck in his first two seasons, for he was kept out of the line-up several times by injuries. The season just past was his best, as he escaped injuries and was a pillar of strength in the line in almost every game.

Captain Merrill already is feeling the responsibility of his position, for Coach Wendell has impressed upon all the members of this year's squad the importance of their keeping up good scholastic averages. Accordingly, "Hoddy" has to keep his team jacked up in their studies throughout the year, in order that exams may not put the skids under promising varsity material.

LEHIGH GIVES FINANCIAL AID TO 120 STUDENTS

Total Value of Scholarships, Loans, and Deferred Tuition Awarded Will Be Over $40,000 This Year

During the present college year, Lehigh will aid about 120 undergraduates to the extent of approximately $40,000. This help to deserving students who would otherwise be unable to complete their educations, takes various forms of scholarships and loans and benefits about an equal number of students in the four undergraduate classes.

The abolition of the alumni scholarships, last June, raised uncertainty in the minds of many alumni as to what financial assistance a student might obtain at the University. There are at present 24 free scholarships, annually awarded, which give the recipient tuition absolutely free. The twenty-four are divided equally among the four classes, each being allowed six. Twelve of these are awarded to the three men who, during the previous year at Lehigh, were without failures in their studies and whose scholastic records placed them in the highest 20 per cent. of their class. Preference is given to those who have shown qualities of leadership. The other twelve are awarded to students who maintained a grade above 70 per cent. and attained distinction in athletics at Lehigh in the previous year. In the case of the Freshman class, of course, the award is based on parallel attainment at prep school.

In addition there are 40 deferred tuition scholarships similarly awarded. Under this plan, the recipient is required to prove his need of financial aid and to sign legal notes bearing 6 per cent. interest for his tuition. There are also several endowed scholarships, such as the Harry S. Haines, the Fred Mercur, the Wilbur and the Joseph Mann Prickitt Scholarships.

The Committee on Scholarships and Loans, in its report for the first half year, points out that the 12 recipients of the free scholarships awarded for scholastic excellence have maintained an average of about 85 per cent. Only nine of the so-called athletic scholarships have been awarded. Full advantage is being taken of the deferred tuition plan by 32 men. Nine students are enjoying the privilege of free B.A. scholarships, 12 more are being given deferred tuition to prepare for the ministry. The notes of these men are cancelled when they enter the ministry. Sixteen honorary scholarships for Bethlehem High School, Bethlehem Prep, Moravian Prep and Mining and Mechanical Institute boys are being shared by 23 students. Seven men are benefiting by the endowed scholarships and by the free tuition offered to sons of professors. The total value of the 95 scholarships awarded this year will be $34,320.

Loans from the Coxe fund to needy students amounted to $4,080 up to the first of the year and had helped 25 men.

EVERY CLASS FOR ITSELF!

AND MAY THERE BE NO HINDMOST

JUST A MINUTE of your time, old man, before you turn the page! Sure, you want to look at your class notes, I know, but hang it, if you don't give these few words a chance to sink in, some day there may not be any class notes!

We've been telling you about this "Lehigh plan" to provide for Lehigh's continued prosperity, and maybe you like the idea and maybe you don't. But forget it, for the moment, and recall that we already have one Lehigh plan under way—a scheme that originated with us and which other colleges are imitating. I mean this Class Guarantee Plan of ours.

Now don't stop reading because you've paid your dues and don't stop reading because you don't want to be reminded that you haven't. This is a chat with everyone, goats as well as sheep!

This is the third year of operation for the Class Guarantee Plan. It is a proven success. It has done wonders in reviving the old class spirit that marked your class in college days. It has brought old friends, long separated, in touch with each other again. It has been the means of reunion classes meeting the expenses of reunion without taxing the men who return.

Now, your class has a reunion coming! It may seem like a long time ahead, but you know right now that you'll want to be there and you'll want to see a reunion worthy of the gang. You won't want a party that will cost so much that it may keep some of the fellows away. Then, your class ought to claim its share of the "gravy" this year, when the "profits" from the Guarantee Plan are divided. If it does not, then you're simply passing up a soft snap! You're getting the short end of the stick, and its time to raise a howl.

Its Up to Your Class

From now on, your class record for this year rests with the class itself. If any dividends are to be declared, the class will have to earn them. We've collected dues and BULLETIN subscriptions from 46% of our active alumni, and with that start, every single class should be able to pass the 75% mark and rate as a dividend payer. **Your** class has a committee whose job is to earn that dividend. If you don't think the committee is on the job hard enough, tell them so. If you don't know who the committee is, tell me, and if I don't know, b'gosh, we will make **you** the committee.

Anyway, with this announcement, the race is on, and its every class for itself. If you've paid your dues, your class committee wants your help in collecting from someone else. If you haven't, you will have the pleasant privilege of encouraging a classmate in his good work by answering his letter with a check. So there's a job for everybody. Now, let's watch the class committees show us how this dues collection ought to be done.

Reunion Classes Lead the Way

It's a safe bet that all this year's reunion classes will go over par before June; because they know how handy those dividends will be. **'85** ought to be in the preferred class next month with 67% to start with. "Curly" Snyder is a bit bashful about collecting dues, but promoting a class reunion is another story! Howard Foering has already started arrangements for **'90's** 35-year celebration, and you'll find a word from him about it under class notes. **'95** is the prize of the reunion classes, so far, with a rating of **69%**, which shows up even stronger when put beside **1900's** modest 32% line. But frankly, I believe this is camouflage on '00's part, because "Dick" Dodson asked us some time ago for a list of latest addresses and Starkey, the new '00 Secretary, was in to see us recently to talk over reunion plans. So **1900** may be this year's dark horse. Twenty-year reunions are pretty sure to go over strong, so I'm not worrying much about **'05**, but I want to warn Clarence White, and Nick Funk too, that they'll have some husky competition this year and it's not a bit too early to get started. Now **1910** has been on the job for a month. Kenney is drumming up trade with his usual vigor and Swope is helping, having devised a new system of locating lost members, which has already unearthed some long lost brethren who are welcomed back to the fold under class notes. All right boys, you got the flying start, but please remind Myrl Jacobs that it will take about twice 42% to cinch the cup for **'10**. When we come to **'15** we're stumped, for Brownie's always so darn busy that we hate to ask him to take on more work. Why don't some of you birds give him a lift? Here's Dick Boyd right here in Allentown, and Si Ballinger in Newark with lots of time to spare (?), Carl Siebecker right here in town and always ready to lend a hand. What say, '15, why not start the new year right, and be all set by the time the snow melts for your big tenth. **'20**, of course, is the least of our worries. True, they don't show up so well just now, with 42%, but Merce Tate is ready to start the ball rolling, and he'll have plenty of help, so there will be action there all right.

'24's hardest job will be finding room for all those who come back for their

CLASS GUARANTEE PLAN

STANDING OF CLASSES, JANUARY 10, 1925

	Members with Addresses	Paid 1924-25 Dues	Paid 1924-25 Bulletin Subscriptions	Percentage to Jan. 10, 1925
1869	1	0	0	0
1870	2	0	0	0
1871	2	1	1	50
1872	4	0	0	0
1873	3	1	1	33
1874	4	3	3	75
1875	6	4	4	66
1876	10	3	2	30
1877	9	5	5	56
1878	9	7	7	79
1879	5	3	3	60
1880	8	3	3	37
1881	5	5	3	88
1882	6	5	5	83
1883	26	19	17	70
1884	16	11	10	67
1885	21	14	14	67
1886	34	17	16	49
1887	43	25	25	58
1888	61	37	35	60
1889	53	35	35	66
1890	64	35	34	54
1891	45	33	32	73
1892	42	27	24	62
1893	76	36	31	45
1894	66	45	45	68
1895	109	76	73	69
1896	100	44	40	43
1897	75	37	38	50
1898	87	33	30	37
1899	46	23	21	52
1900	62	20	19	32
1901	63	33	33	52
1902	49	22	22	45
1903	90	45	43	49
1904	97	55	55	57
1905	110	44	44	40
1906	118	52	52	44
1907	123	57	55	46
1908	145	56	54	38
1909	136	53	52	39
1910	151	64	63	42
1911	124	43	42	34
1912	133	44	44	33
1913	142	53	53	37
1914	127	61	61	48
1915	127	58	56	45
1916	135	58	57	43
1917	166	66	67	40
1918	136	56	56	41
1919	145	59	61	41
1920	182	77	76	42
1921	167	83	80	48
1922	218	90	87	40
1923	312	138	136	44
1924	265	125	120	46
	4561	2099	2045	46

first, but they'll manage. The way those boys have put over their $10,000 endowment gift (or will have done so, in a few weeks), is proof of what kind of stuff they are made of. Only clean up the list, boys, and keep after the slow payers if you expect to top '23's showing last year.

Now '09, having gotten away with one experiment, a reunion **en famille,** is talking about trying another—a reunion every year! Well, why not? They seem to get better every time, so why not accelerate the process? "Dave" Petty has had a mean eye cocked at 24 "birds" on his list who, he says, never do kick through to help the class. Just as he was about to cross them all off in disgust, along comes a nice letter from one of them that made him feel so good that he nearly paid the dues of the other 23 himself. While there's life, there's hope, Dave.

So much for this year's reunion classes. Now how about **your** class? Are you going to sit back and watch the black lines creep up on all sides until you begin to pass over the chart each month without looking at it. Or are you going to take your pen, right now, and drop a note to your committee offering your help. Tomorrow? Oh, come on, you've got the time now—tomorrow you'll be busy. That's the stuff, that will help a whole lot, and you'll be glad its off your chest for a while!

COLLEGE AND ALUMNI NEWS

1925 FOOTBALL SCHEDULE

To those of us who were accustomed in our days at Lehigh to seeing such teams as Yale, Princeton, Pennsylvania and Cornell as Lehigh's opponents the schedules for the past ten years seem far from satisfactory. This past season we played Princeton, in 1922 and '23 we played Brown, for some years previous to that we had a game with Penn State, but outside of these games it is necessary to go back a number of years to find any high lights on our football schedules. Our games with Lafayette and Rutgers are highly satisfactory and Muhlenberg is fast becoming an interesting and formidable rival. Outside of these three games, however, our schedule each year seems very uninteresting to the old timer. Why, I can remember in one year playing against Yale twice, Princeton twice, Lafayette twice in addition to games with Pennsylvania, Cornell, Navy, Carlisle Indians, North Carolina, Rutgers, Swarthmore and the Orange Athletic Club. We also had a game scheduled with the Army but cancelled that, feeling our schedule was a little (?) heavy.

Of course such a schedule is not possible in these days but most of us would like to see the return of a few of our old-time rivals to a place on Lehigh's list of football opponents. This will take a lot of time and effort, for Lehigh is much too strong for a big college to schedule as a minor attraction and scarcely of the size or football reputation to be taken on as a major attraction. However, matters look promising for a return of Princeton and Brown to our schedule in 1926. We all regretted our inability to agree with Princeton on a date for next year. After our tie game with them on October 11, they stated we were too strong for such an early date and suggested the third Saturday in October. This we accepted but when they tried to get the Navy to move back to the fourth Saturday, the Navy said this was impossible. Accordingly Princeton offered us the fourth Saturday, but unfortunately our contract with Rutgers prevented Petrikin from accepting this date. Princeton seemed genuinely sorry and wrote stating that they hoped nothing would prevent a game in 1926. Certainly, as far as we are concerned, nothing will.

The 1925 schedule is much the same as 1924 except that Carnegie Tech takes the place of Princeton, Georgetown the Holy Cross date, and West Virginia Wesleyan the place of Dickinson. There is one more game than last year on the schedule, which is a light one with Drexel. Gettysburg, Muhlenberg, Rutgers, Villa Nova and Lafayette are played on Saturdays corresponding to their dates during the past season. Perhaps the best feature of the schedule is the playing of games in three of our big alumni centres. Rutgers is played at New Brunswick in the Metropolitan district, Georgetown at Washington, giving our Baltimore and Washington Alumni a game for the first time in many years, while our big Pittsburgh group have the advantage of seeing our team in action against Carnegie Tech.

It is a tough schedule. West Virginia Wesleyan will be a a hard nut to crack. Last season they were the only team in the East to beat Syracuse. They are coached by Higgins, the famous Penn State end and captain of a half dozen years back. This will be the big home attraction in October and may prove the hardest game on the schedule. Rutgers, Muhlenberg and Georgetown follow on successive Saturdays and of these three stiff games it may surprise the old-timer to be told that it looks now as though Muhlenberg may prove the hardest to win. Lafayette and Carnegie Tech, everyone realizes, are tough games. In short it is the hardest schedule we have faced in a number of years.

Doubtless you will want to know why we play Gettysburg away. The reason is that they will have a new stadium next year and have asked us to play the opening game in it. As they have been coming to Bethlehem

for a number of years, we acceded to their request just as Harvard, Yale, Pennsylvania and others are all going to Providence next year to play Brown in her new stadium in courteous recognition of the many years of athletic relationship between them and Brown.

Schedule

Oct. 3—Gettysburg at Gettysburg.
Oct. 10—Drexel at home.
Oct. 17—West Virginia Wesleyan at home.
Oct. 24—Rutgers at New Brunswick.
Oct. 31—Muhlenberg at home.
Nov. 7—Georgetown at Washington.
Nov. 14—Villa Nova at home.
Nov. 21—Lafayettte at home.
Nov. 28—Carnegie Tech at Pittsburgh.

Strong Lacrosse Schedule Arranged for 1925

The following is the schedule of games for the 1925 lacrosse season, just approved by the Faculty.

Schedule

April 9—Yale.
April 18—Stevens.
April 25—Hopkins.
May 2—U. of Maryland, at Baltimore.
May 5—Toronto.
May 9—Swarthmore, away.
May 16—Mt. Wash., at Baltimore.
May 23—Univ. of Penn., at Philadelphia.

Baseball Schedule Includes Two Trips

As pretty a schedule as Lehigh has had in years has been arranged by Manager H. E. Stahl. It calls for a southern trip at the beginning of the season, taking in four games in Baltimore, Washington and Philadelphia; and a northern trip early in May, on which the nine will visit Schenectady, Boston and Providence. Of course the annual "best out of three" with Lafayette is the feature. It is probable that a second game with Bucknell, at Lewisburg, will be played if a satisfactory date can be arranged.

Schedule

April 8—Princeton, away.
April 9—U. of Maryland, at Baltimore.
April 10—Marines, at Washington, D. C.
April 11—Johns Hopkins, at Baltimore.
April 18—Pennsylvania, at Philadelphia.
April 22—Rutgers, at home.
April 25—Muhlenberg, at home.
April 29—Army, at West Point.
April 30—Union Col., Schenectady, N. Y.
May 1—Boston College, at Boston.
May 2—Brown University, away.
May 6—Seton Hall, at home.
May 9—Lafayette, at home.
May 13—Ursinus, at home.
May 16—Lafayette, away.
May 20—Villanova, at home.
May 23—Lafayette, at home.
June 6—Bucknell, at home.

Soccer Team Takes Fourth Straight from Lafayette

Let us be thankful for such lesser blessings! As the squirrel said to the mountain, "if I cannot carry forests on my back, why, neither can you crack a nut!" The Brown and White soccer eleven, after a season full of hard luck and costly injuries, slithered through a slime on March Field very similar to that of the memorable 22nd of November, and emerged with a muddy, but none the less maroon scalp. Coach Carpenter thereby keeps his record clean, having closed his fourth season at Lehigh without losing a game to Lafayette. The score was 2 to 0.

Basketball Team Promises to Repeat

With six games played off and five of them chalked up for the home team, our basketball team bids fair to repeat its victorious performance of last season. The only set-back was administered by Princeton, and while the boys offer no alibi, it's a fact that they had an off night at Princeton, and "couldn't seem to get going." The first game with Rutgers, played in New Brunswick, indicated that our five has struck its stride, for the scarlet went down to the tune of 49 to 38. Hess' sensational baskets from the center of the floor featured the game. Schaub showed uncanny accuracy in his free tries.

Coach Baldwin has brought about a marked improvement in the team since the opening game. Barring injuries to his first string men, there is no reason to expect anything but a highly successful season.

Schedule

	L.U.	Opp.
Dec. 10—Moravian College ...	68	10
Dec. 13—Princeton, away	9	29
Dec. 17—Seton Hall	43	29
Jan. 7—Toronto	46	38
Jan. 10—Rutgers, away	49	38
Jan. 14—Albright	62	11
Jan. 16—Rutgers.		
Jan. 21—Muhlenberg.		
Feb. 7—Swarthmore, away.		
Feb. 14—Bucknell, away.		
Feb. 16—Delaware.		
Feb. 18—Fordham.		
Feb. 21—Lafayette.		
Feb. 25—Gettysburg.		
Feb. 28—Lafayette, away.		

PROFESSOR GIPSON HONORED BY BRITISH

An honor that has been accorded to only a very few Americans has just been conferred upon Dr. Lawrence H. Gipson, head of the Department of History at Lehigh, by his election as a Fellow of the Royal Historical Society of Great Britain.

This distinction comes to Dr. Gipson in recognition of the merit of his writings on American colonial history, on which subject he is a recognized authority.

MEMORIAL PLANNED TO STOEK, '87

A movement has been started by some of the friends of the late Professor H. H. Stoek, '87, at the University of Illinois, to erect a suitable memorial in commemoration of his life work in teaching and in the mining industry. The arrangements have been made with Lorado Taft to design and execute the memorial tablet. The name of this noted artist is a sufficient guarantee that the tablet will be a dignified tribute to the memory of Professor Stoek. A sum of approximately $2000 will be required for its execution and erection.

Stoek graduated from Lehigh in '87 with the degree of Bachelor of Science and was given the E.M. degree the following year. He was awarded honorary degree by the University of Pittsburgh in 1920. He was instructor in mining and geology at Lehigh from '89 to '91, and instructor in Mining Metallurgy from '91 to '93. Later he joined the faculty at Penn State and afterwards at the University of Illinois, where he remained until his death in 1923. His teaching activities, extending over nearly a quarter of a century, resulted in a great many personal friends among the faculty and students. His twelve years of service as editor of *Mines and Minerals* and his affiliations with scientific societies were responsible for many more. These connections together with his professional and research work made him probably the best known man in the coal mining industry in the country.

Stoek was secretary of the Lehigh Alumni Association for a number of years and the Memorial Committee feels that some of his Lehigh friends might like to contribute to this project. A. C. Callen, '09, who is head of the Department of Mining in Illinois, is chairman of the Memorial Committee. Subscriptions to the Fund should be sent to him at 209 Transportation Building, Urbana, Illinois.

CHRISTMAS GIFT FOR LEHIGH

Along with the many Christmas greeting cards so thoughtfully sent by many Lehigh men there came one from the Class of '77 on the back of which was written:

"Enclosed please find a contribution to the Endowment Fund from a member of the Class of '77. No name is given—simply the desire to do something."

(Signed) CLASS '77.

Perhaps by a little detective work we might discover the identity of the writer, but we prefer to accept it for Lehigh in the spirit which it was sent, namely, as an expression of Good Will from one who was imbued simultaneously with the Christmas spirit and the Lehigh spirit.

Extension Courses Planned for Next Summer

Announcement of courses to be offered at Lehigh during the summer of 1925 has already been made, and plans are under way to accommodate a larger number of students than ever before. Among the subjects found regularly in the various curricula that will be offered this summer are surveying, assaying, chemistry, physics, electrical engineering, bacteriology, mathematics, education and psychology, modern and ancient languages, English, sociology, acocunting, economics, philosophy, history and geology.

Of special interest to teachers are the courses to be offered in methods in teaching geography, chemistry, mathematics, social science and the instruction of exceptional children.

Prof. Percy Hughes is director of the Summer Session.

PROF. ROUSH COMMISSIONED MAJOR IN R. O. T. C.

Notification of his appointment as a staff specialist in the Officers' Reserve Corps of the United States Army with the rank of major has just disclosed a signal honor, conferred by the War Department upon Prof. Gar A. Roush, associate professor of metallurgy at Lehigh since 1912. Prof. Roush was asked by the Assistant Secretary of War to accept a commission in order that he might serve as special lecturer on the sources of supply of strategic minerals in the Army Industrial College. This training school is conducted in Washington to instruct officers of the regular army in the fundamental factors governing the supply of raw materials and natural resources which are vital to the national defense.

H	Y	D	R	A	T	E	■	I	G	N	I	T	E	S
A	■	R	A	T	E	■	P	■	E	A	C	H	■	O
R	■	Y	■	O	R	D	E	R	L	Y	■	E	■	L
D	O	■	P	M	■	E	R	E	■	S	O	■	C	U
E	N	D	O	■	N	A	■	A	H	■	R	O	O	T
N	E	E	■	S	I	L	I	C	O	N	■	S	T	E
S	■	C	O	■	T	S	■	T	L	■	A	M	■	S
■	T	I	N	■	R	■	■	■	M	■	C	O	W	■
D	■	M	E	T	A	L	■	T	I	N	T	S	■	F
I	D	A	■	S	T	I	B	I	U	M	■	I	C	E
S	A	L	T	■	E	G	■	A	M	■	T	S	A	R
T	M	■	O	■	■	H	E	R	■	■	I	■	B	R
U	■	A	■	T	I	T	R	A	T	E	■	O	■	O
R	■	Z	E	R	O	■	A	■	E	M	I	R	■	U
B	R	O	M	I	N	E	■	G	A	S	E	O	U	S

Answer to puzzle on page 11.

LEHIGH MEN WHO WRITE

James Scott Long, Associate Professor of Inorganic Chemistry at Lehigh, contributes a very thoughtful and original article, entitled, "Chemical Laboratory Study," to the December 13 issue of *School and Society*. The basic thought emphasized is the desirability of so arranging the work of the student in chemistry that he is made to realize the scientific principles involved in his experiment rather than regarding it as a rule-of-thumb routine that he carries out much as the housewife follows the direction in the cook book. The article expresses the platform of the Lehigh chemistry department to a tee and the practical common sense of Long's conclusions should make it plain to the reader how Lehigh's chemistry course contrives to rate with the best in America.

Joseph B. Reynolds, '07, Associate Professor of Mathematics and Astronomy at Lehigh, and Samuel Cottrell, '22, are joint authors of an article entitled, "How to Find the Contents of Horizontal Storage Tanks," which appeared in the October 27, 1924, issue of *Chemical and Metallurgical Engineering*. The article, which presents a table and simplified method of calculating accurately the volume of a liquid contained by a partially full cylindrical horizontal tank with bumped ends, has attracted much favorable comment from operating men in various industries. The values in the table have been carefully computed and the factors used in the calculation are carried out to enough decimal places to insure an accuracy in the volume well within the measurements of a variation in the tank due to rivet heads, seams, etc. Reprints of the article have been prepared by the publishers to supply the numerous demands of the public.

The Science Press, publishers of *Science* and *School and Society*, recently brought out a small book by R. W. Walters, '07, entitled, "Educational Jottings Abroad." The book is made up of eleven reprinted articles which originally appeared in *School and Society*, The Literary Review of the *New York Post* and the *Public Ledger*, the *Journal of the National Educational Association*, and in other publications and which deal with educational methods abroad, as observed by Walters last summer.

Professor Benjamin LeRoy Miller, of Lehigh's Department of Geology, is the author of a book entitled, "Lead and Zinc Ores of Pennsylvania," which is known as Bulletin M5 in the fourth series of the Pennsylvania Geological Survey. This report on the lead and zinc mines of Pennsylvania was needed by the Pennsylvania state geologists because of the revival of interest in lead and zinc mines in Pennsylvania in recent years. Professor Miller was chosen as the expert best qualified to visit the localities where these ores had been mined, as he has studied the occurrence of lead and zinc ores in Pennsylvania and other parts of North and South America, both scientifically and professionally, for many years. In his booklet Dr. Miller points out that certain of the deposits have not been exhausted and cites the difficulties that must be expected in reopening and mining these deposits. With equal emphasis he announces his belief in the worthlessness of supposed deposits at other places. In his letter of transmittal to the secretary of the Department of Forests and Waterways, George H. Ashley, the State Geologist, states, "This report will serve miners and investors as a guide to development in the more favorable places, and as a warning against spending money and labor in attempts to develop mines in those places where all the evidence is against the success of such an undertaking. It is confidently believed that this report, prepared and printed for a few hundred dollars, will be worth many thousands of dollars to the citizens of Pennsylvania."

Professor Stanley J. Thomas, '13 and '15, of Lehigh's Department of Bacteriology, contributes a short article to the September 12, 1924, issue of *Science*, in which he disputes the accepted belief that the typhoid bacillus will resist freezing temperatures for a considerable time. His contention is based on experiments conducted by W. R. Kreidler, '20, who has done considerable experimental work on this subject.

In the January issue of the "Historical Outlook," published by a committee of the American Historical Society, appears an article, "Dynastic Delaware," telling of the extraordinary political records of the Bayard and DuPont families. The article was written by the head of the department of economics at Lafayette College, Prof. Ezra Bowen, Lehigh, '13.

Mrs. Bowen's History of Lehigh is Ready

Copies of Mrs. Ezra Bowen's book, "History of Lehigh University," have been mailed to all alumni who ordered them in advance. The balance of the edition will be stored in the Alumni Office and copies may be obtained at any time upon request. The book sells for one dollar.

With its numerous excellent illustrations and its brown cloth binding, the volume is most attractive in appearance. BULLETIN readers, of course, need no assurance of the excellence of the subject matter. "Girard," writing in "The Philadelphia Inquirer," of January 3, says, "nowhere else have I read so sprightly a story of any college as Catherine Drinker Bowen has written about Lehigh University."

MAY WE PRESENT SOME OF

OUR ADVERTISERS

EVERY DAY A GOOD DAY

NO need to explain that this is the slogan of the Carrier Engineering Corporation, specialists in air conditioning and drying equipment and original "manufacturers of weather." Mark Twain sprung his famous wise crack about the weather before the Carrier people got started; now-a-days it would fall flat, for while everybody still talks about it, here's one concern that most decidedly does something about it. In fact, Carrier equipment is today manufacturing more than four hundred million pounds of made-to-order weather every working day.

The Carrier Corporation was founded by Willis H. Carrier and J. Irvine Lyle. Their advertising manager would like us to believe that they were inspired by a beautiful spring day to attempt to duplicate mechanically the process of Nature in producing such days and thus improve upon Nature by making "every day a good day." We prefer, however, to believe that being clear sighted engineers, they realized the tremendous importance of air conditioning in industrial establishments, both as a factor in the efficiency of employees and in the uniformity of numerous products which are sensitive to temperature changes and moisture.

One of the most striking installations of Carrier conditioning equipment is that of the Naval Aircraft Station, at League Island, Philadelphia, which is supplied throughout with "artificial weather." Numerous spinning and weaving mills for cotton and silk are supplied with Carrier conditioned air, for the moisture content of the fibers is recognized as one of the most important factors in production. A dry fiber is brittle and easily broken; a wet fiber is easily stretched until it pulls apart; in either case production is slowed down. Candy companies, bakeries, rubber manufacturers, makers of chewing gum, motion picture films, mattresses, tobacco, chemicals, paper and dozens of other diversified products find properly conditioned air necessary to uniform and efficient operation. In addition to the importance of atmospheric conditions to the product, engineers are coming more and more to realize that good ventilation is vital to maximum efficiency of employees, and the Carrier idea is to keep every worker full of pep every day.

E. T. Murphy, '01, is vice-president of the Carrier Engineering Corporation, and manager of its Philadelphia office. He has been connected with the company for 10 years. W. A. Bornemann, '17, is also located in Philadelphia, selling Carrier service to customers in that district. "Borny" is in his sixth year with the company.

THEY PUT THE WORKS IN WATER-WORKS

THE DRAVO-DOYLE CO. is, as its name implies, an off-shoot of the Dravo Contracting Co., the wonderful engineering organization built up by those two Lehigh brothers, "Frank" R. Dravo, '87, and Ralph M. Dravo, '89. There are other subsidiary Dravo companies as well, all with their general offices in the new Dravo Building, in Pittsburgh, but the Dravo-Doyle Company, Merchant Engineers, is such a husky offspring and so decidedly Lehighesque in personnel that it well merits a column of its own on this page.

The company specializes in the design and installation of complete power plants and water works. Many of the large modern municipal pumping stations in Pennsylvania, Ohio, West Virginia and Indiana were designed and equipped by this concern. Foremost among these important jobs, perhaps, is the splendid Queen Lane pumping station, in Philadelphia, which contains more total pumping horsepower than any other station in the United States.

The president of the company is Mr. Thomas E. Doyle. J. D. Berg, '05, is vice-president and general sales manager. "Dan" started to work nineteen years ago, as a sales engineer, and has been a big factor in the success of the firm. The Philadelphia branch office is in charge of S. P. Felix, '03, who has worked for the company for 15 years, having also started in the capacity of sales engineer. E. W. Estes, '20, is sales engineer in the Philadelphia district and is serving his fourth year with the firm. W. P. Berg, '15, is assistant chief engineer, with headquarters in Pittsburgh, and J. R. Farrington, '22, is sales engineer in the same district.

The Dravo-Doyle Co. maintains branch offices in Cleveland, Philadelphia, Indianapolis and New York. They handle the products of the De Laval Steam Turbine Co., of Trenton, N. J.; the De Laval Separator Co., of New York; the American Steam Pump Co., the American Engineering Co., of Philadelphia; the Dravo Mine Pump Co. and the Dravo Bronze Co., of Pittsburgh.

PERSONALS

MARRIAGES

Class of 1894

W. B. Wooden to Miss Gwynneth Gminder, of Baltimore, on January 5, 1925, in Richmond, Va. Mr. and Mrs. Wooden will live at 607 Lennox St., Baltimore, Md.

Class of 1921

W. K. Whitmore to Miss Marry Tarrant Fairbairn, of Joliet, Illinois, on October 20, 1924, in Chicago. Mr. and Mrs. Whitmore are living at the Evanston Hotel, Evanston, Illinois.

Class of 1923

Carl F. Bodey to Miss B. Ellen Schofer, of Reading, Pa., on November 12, 1924, in Trinity Lutheran Church, Reading, Pa. Mr. and Mrs. Bodey are living at 928 Cumberland St., Lebanon, Pa.

H. F. Fehr to Miss Gladys Emma Thomas, of Bethlehem, on Thursday, December 25, 1924, in Bethlehem. Mr. and Mrs. Fehr will live at 612 West Union St., Bethlehem, Pa.

E. M. Sansom to Miss Gladys Ruth Houghton, of Cranford, N. J., on Monday, December 15, 1924.

John L. Stewart, Jr., to Margaret Rounds, of Washington, D. C., on January 10, 1925, in Washington.

BIRTHS

Class of 1915

To Mr. and Mrs. H. D. Cranmer, of Buenos Aires, Argentine, a son, Harold Donald, November 1, 1924.

Class of 1918

Born to Mr. and Mrs. August Concilio, of Bethlehem, a daughter, Theresa Elizabeth, on November 9, 1924.

Class of 1924

To Mr. and Mrs. Carl M. Bortz, of Akron, Ohio, a daughter, Margaret Elizabeth, on January 8, 1925.

Class of 1871

Dr. H. S. Drinker sails for Bermuda on January 17 for the rest of the Winter.

Class of 1884

H. B. Douglas, Assistant to F. E. Herriman, President of the Clearfield Coal Corporation, a New York Central subsidiary, has resigned and the position has been abolished. Douglas had been with the corporation for eleven years. He had been an inspector of coal for the New York Central for about six years, when he was made Acting General Manager of the Clearfield Bituminous Coal Corporation in 1913. Soon after he became General Manager, serving in this position until the close of 1921, when he was made Assistant to the President. He plans to make his home in Newton, New Jersey.

Class of 1887

I am sure that the heartfelt sympathy of the Class will be extended to C. A. Buck upon the news of the sudden death of his wife on January 7. Seldom have I known a couple who were so close to each other in all the varied activities that filled the busy lives of each. Mrs. Buck filled a place in the community life of Bethlehem that cannot be taken by any other. To the sympathy of his classmates will be added that of the entire alumni body for our President in his greatest loss.

Class of 1890

J. W. Stone is living in New Orleans at 1805 Octavia Street.

The Class of '90 last June appointed Neumeyer and Foering a committee to take charge of the arrangements for the celebration of its thirty-fifth year reunion. The committee has started work, and urges every member of the Class to become a working member of this committee, in order that the Class of '90 may have a 100% attendance reunion. Should this notice reach the eye of any one of the Class who may fail to receive a letter from the committee, it is kindly urged upon him to communicate immediately with H. A. Foering, Class Secretary, Room 202, Bethlehem Trust Company Building, Bethlehem, Pa.

H. A. Foering.

Class of 1891

Alban Eavenson was recently elected secretary of the Philadelphia Wool and Textile Association.

F. A. Merrick, now vice-president and general manager of the Canadian Westinghouse Company, has been elected vice-president and general manager of the Westinghouse Electric & Manufacturing Company effective January 1, 1925. Merrick will have general executive charge of the parent company.

Class of 1892

R. J. Snyder formerly with A. R. Womrath Company, of New York, has accepted a position with the Weiss Engineering Corporation, of Newark, N. J., and maintains his office at 17 Battery Place, New York City.

Class of 1895

Henry C. Quigley, who is assistant secretary of the Employees' Benefit Fund Committee of the Western Electric Company, has been transferred from Chicago to their Main office in New York and is living at 26 Oxford St., Montclair, N. J.

Class of 1896

W. B. Taylor is proprietor of the Health Bread Shop in New Bedford, Mass.

Class of 1900

Major C. E. T. Lull has recovered from the illness which confined him to the Walter Reed Hospital for eight months and has returned to the Edgewood Arsenal, Baltimore, Md., as technical director.

Class of 1901

Percy Grubb, formerly a member of the teaching staff of the Harrisburgh Technical High School, resigned his position there last Fall to engage in the financing and promotion of real estate. He is vice-president of the Mortgage Finance Corporation of Harrisburg, and has offices in the Caplan Building.

Class of 1902

W. H. Peepels, who was formerly St. Louis manager for the W. C. Cornell Company, has accepted a position as manager of heating with the American Chicle Company, in Long Island City.

Class of 1903

George W. Butz has been watching the football schedule at the Steelton, Pa., High School and is trying to interest some of their stars in coming to Lehigh. George's new business address is 441 Walnut St., Harrisburg, Pa.

P. A. Degener, formerly with the T. H. Symington Company in New York City, has accepted a position with C. A. Auffmordt & Company, of 114 E. 23rd St., New York City.

Class of 1904

Ray L. Herrick, formerly with the French Bros-Bauer Company, of Cincinnati, Ohio, has accepted a position with Frederick C. Matthews Company, of 685 Mullett St., Detroit, Mich.

Class of 1905

C. E. Aldinger is with the Metropolitan Edison Company in Reading, Pa.

Class of 1906

E. S. Adams, formerly with the Adams Bradford Company, sales engineers, in Cleveland, Ohio, has accepted a position in the Sales Department of the Socony Burner Corporation, with headquarters at 41st St. and 2nd Ave., Brooklyn, N. Y. He is living at 14 E. 60th St., New York City.

J. Russell Wait has been elected general manager of the Port Utilities Commission of Charleston, S. C., with offices in the Peoples Office Building. Wait gave up the general management of the Charleston Ore Company several years ago to become general manager of the Charleston Port Terminals, an organization formed to operate the docks and warehouses of the Government Port Terminals near North Charleston. Later he accepted a position with the Columbia Salvage Corporation of New York, which company released him on November 30 to accept this new post with the Port Utilities Commission.

Class of 1907

A. C. Smith, formerly signal engineer with the General Railway Signal Company, of Lachine, Quebec, is now located at 165 Bryant Avenue, Staten Island, N. Y.

Bruce M. Swope, who is with the Pennsylvania Railroad, has just been transferred to Olean, N. Y., in the capacity of master mechanic of the Buffalo division. He is living at 708 West Henley St.

George H. Wartman, who is secretary and treasurer of the Keystone State Hotel Association, has been appointed managing director of the Cortez Hotel in Miami, Florida, the newest and finest hotel in that resort. The new hotel will be open all year. George took charge on December 15 and should be addressed at Cortez Hotel hereafter.

Class of 1908

Chas. S. Dandois, formerly with the Bureau of Public Roads in Washington, D. C., has moved with his family to St. Petersburg, Florida. Dan is associated with "Deacon" Lynch in a high-class real estate and investment business.

A. J. Guerber, formerly with the Radium Company of Colorado, has accepted a position as chief chemist with the U. S. Vanadium Company in Denver, Colorado.

R. L. James is engineering assistant with the Harrisburg Gas Company, at Harrisburg.

Class of 1909

Dear Dave:

You have at last worn me down and I have today sent a check to J. A. Frick for $7, which was the amount of the statement enclosed with your letter.

I enjoyed reading your letter and note with interest that '09 kids are getting fairly numerous. I have two of my own, but unfortunately my boys are girls, so I am not planning on sending them to Lehigh, where old grads grow to be pot-bellied pirates!

One of my daughters will be thirteen in January and she is five feet five and a half inches tall, and some people say it doesn't tire the eyes to look at her. The other is ten years old and in due time ought to be as good to look at, for she is from the same mold.

Yes, I noted with much sorrow that Lehigh took its annual licking from Lafayette. I wonder if the habit will ever be broken. Personally, I have never seen Lehigh beat Lafayette at football in all my life, though I have once or twice read it,

but I question whether it is safe to believe all you read or not?

I like your idea of the reunion where the wives are recognized and given a seat around the festive board. A practise reunion sounds good, but when the time rolls around for this reunion, probably I will be unable to attend.

Upon receipt of this letter, I suggest that you take a day off to celebrate, for as you well know, I am one of the twenty-four in my class who has not paid a nickel in three years, but why be so conservative? Why not make it six?

Wishing you the best of everything for the New Year, and hoping you will hear from me again with a check before another six years pass, I am,

————————, '09.

W. L. Archer has gone in the building business, having formed the firm of Lewis & Archer, Inc. The Company has offices at 140 East 44th St., New York City.

W. F. Banks has been elected President of The Motor Haulage Company, Inc., of New York City. The firm operates 110 heavy duty trucks on railroad and special contract service for large firms in the Metropolitan district.

E. G. Boyer, formerly with the Consumers Gas Company, at Reading, has accepted a position with the Counties Gas & Electric Company, at Norristown, Pa.

Gannett, Seelye and Fleming, Inc., announce the organization of Gannett, Seelye and Fleming, Engineers, Inc., which has taken over and will continue with all of the engineering and construction work of the former company. Gannett, Seelye & Fleming, Inc., will continue in the financing, management and development of public utilities and industrial properties. In the new corporation, in addition to Farley Gannett, Theodore E. Seelye and Samuel W. Fleming, Jr., '09, are Frank H. Eastman, Dartmouth College, construction manager, W. H. Corddry, '11, second vice-president and manager of the Memphis Office, and J. D. Carpenter, Pennsylvania State College.

Charles F. Keife, who is with the Leonard Construction Company of New York, has been transferred to their Chicago office at 37 S. Wabash Avenue. He is living at present at the St. George Hotel, in Chicago, Ill.

Chester H. Struble is managing editor of "The Nautilus Magazine," in Holyoke, Mass.

Class of 1910

A. D. Bryant, who was formerly located in Waldo, New Mexico, is now living in San Francisco, Calif. Mail addressed to box 2538 will reach him.

George H. Crocker is located at 334 South 17th St., Philadelphia, Pa.

William J. Donkel, who has been lost on the alumni records for some years, has been located in Toledo, Ohio, where he lives at No. 1 Tussord Arms, Scottwood Ave.

Franck C. Gilligan is with the Franklin Sugar Refining Company, in Philadelphia, and is living at 422 Browning Road, West Collingswood, N. J.

Class of 1911

W. H. Corddry is Vice-President of Gannett, Seelye & Fleming, Engineers, of Memphis, Tenn. His office is in the Randolph Building and his residence at 519 Vance Avenue.

Class of 1912

W. R. Seyfried, who is superintendent of the Federal Phosphorus Company in Anniston, Alabama, has moved to a new house at 713 E. Ninth St., in that city.

Class of 1913

"Pat" Seguine has left the American Cynamid Company and is now research and sales engineer for the St. Louis Lithopone Company, at 2021 Railway Exchange Building, St. Louis. Temporarily he is living at the Hotel Warwick in St. Louis, Mo.

Class of 1914

P. F. McFadden is in the Real Estate business in Allentown, Pa., at 401½ Ridge Avenue.

M. C. White is living at New Orleans, La.

Class of 1915

E. R. Frey, who is Middle States special agent for the New York Underwriters Agency, has been transferred from New York City to 751 Drexel Building, Philadelphia. He is living at 1211 South 58th St.

Class of 1917

D. R. Brobst is in the General Development Laboratory of the Western Electric Company in New York, at 463 West St.

"Pop" Custer, who has been in charge of night school work in the Engineering School of the Keystone Institute of Reading, Pa., has accepted a position as Asst. Patent Examiner in the Patent Office in Washington. He is living at 3026 Proter St., N.W., Washington, D. C.

Walter Gilmore writes that he is headed for Hawaii for the spring manoeuvers of a Pacific fleet. He ranks as supply officer aboard the U. S. S. Camden. Before leaving on this cruise, Gilmore was stationed at the Naval Supply Station at Hampton Roads, Va.

Frank I. Magee, formerly with the Aluminum Company of America, has been transferred from their Pittsburgh office to the sales department in Newark. He is living at 19 Melrose Ave., East Orange, N. J.

"Al" Quist has left Hallgarten & Company to accept the position of manager of the Municipal Bond Department of Hayden, Stone & Company, 25 Broad St., New York City.

Class of 1919

George P. Burgess is Real Estate Manager of the Trust Department of the State Bank of Chicago, Chicago, Ill.

L. L. Dixon is in South America with the Braden Copper Company, located in Rancagua, Chile.

W. O. Schaub is in the automobile accessories business in Baltimore. He is living in the Preston Apartments at Preston and Guildford Ave.

"Fritz" Sefing has left Penn State to accept the post of Asst. Professor in the Department of Metallurgy at the Michigan Agricultural College, at Lansing, Michigan. He writes that he is doing some outside work for some of the local industries in Research on Abnormal Tool Steel under the College Engineering Experiment station.

George Weber has been making the rounds of the Southwestern oil fields and has just sent us a note about his travels during the last few months. For some time he was located at Electra, Texas, where he was working as a "roughneck" on a rotary drilling rig for the Texhoma Oil & Refining Company. From there he went to Henrietta, Texas, to the Texas Company's plant, to treat B. S., which is the oil man's name for an oil and water emulsion. The oil extracted from this 50-50 mixture is used for fuel. On October 1 George was made manager of the Sanders-Taylor Oil Company and is now living at 1601 11th St., Wichita Falls, Texas.

The sympathy of the class goes out to "Bill" Whigham, whose father died on December 24, in Pittsburgh. Mr. Whigham was vice-president of the Carnegie Steel Company and was a graduate of Stevens Institute.

Class of 1920

Rush Clarke is with E. P. Reed & Company, Manufacturers of Women's Boots and Oxfords, in Rochester, N. Y.

G. R. Hills has left the employ of the New York Central Railroad and gone into the retail coal and lumber business in Mill Hall, Pa., with the O. B. Hills Company.

J. J. Mieldazis, who has been in Jerusalem, Palestine, for the past year with the Department of Health at that city, is now in Pampanga, Phillipine Islands.

Wm. M. Tinker is teaching in the Normal School at Slippery Rock, Pa.

Joseph A. Wensk resigned from the Western Electric Company at the end of November last on account of continued ill health. Joe is living with his folks, in Baltimore, and taking it easy until he gets back his old pep.

Class of 1921

William L. Bowler, who has been down in Chile with the Chile Exploration Company, has returned to the States and is living at 27 Stanley Avenue, Glenside, Pa.

Gene Burgess supplies the information appearing in this issue of the "Bulletin" under "Marriages," in which Bill Whitmore's marriage is reported. Gene is evidently responsible for the whole thing, for he writes as follows: "I introduced Bill to Mary in March and after being out of town most of the intervening time he blows in from Oklahoma on October 20, 1924, in the A.M. and at 8:00 P.M. they were married and sped for Pittsburgh and points east. He sure did the job in a hurry and didn't give Ed Whitney, '19, and I a chance to congratulate him or let us in on it."

Jim Farrington, formerly sales engineer with the Dravo-Doyle Company in Pittsburgh, has been transferred to the Dravo Equipment Company with offices at 1603 St. Clair Ave., Cleveland, Ohio.

R. R. Long is a mining engineer with the Temple Anthracite Coal Company, at Mahanoy Plane, Pa.

Class of 1922

Charlie Greenall, who is with the Western Electric Company in their New York development laboratory, is living at 116 Riverside Drive.

"Cy" Spatz has taken a position in the Plant Department of the A. T. & T. Company in Pittsburgh. He is living at 334 South Negley Avenue.

S. B. West says he is Secretary of the Westmoreland Specialty Company of Grapeville, Pa., and has moved his residence to 1432 Barnesdale St., Pittsburgh.

Class of 1923

W. H. Cosh is assistant chief clerk with the H. J. Heinz Company, at 3100 N. 12th St., Philadelphia, Pa.

W. B. Hogg, who has been working for the Gary Tube Company for the past two years, has been promoted to the position of building inspector with them and is located in Gary, Indiana.

"Lou" Jacobson did not forget Lehigh when he made out his lists of Christmas presents, for he writes that he intends to finish paying up his original subscription this year and asks to be billed for a like amount every year until 1929.

"Tippy" Lambert is teaching in the Northeast Boys' High School in Philadelphia and living in Wyncote, Pa.

T. J. Lea is Secretary-Treasurer of the Mohican Copper Ferrule Company, at 38 Wooster St., New York City.

R. R. Maynes, formerly in Wilkes-Barre with the Lehigh Valley Railroad Company, is again located in Allentown at 944 Club Avenue.

"Fats" Reiter has accepted a position as chief inspector of the Projectile Department at the Bethlehem Steel Company plant. He is living at 521 Fourth Ave., Bethlehem, Pa.

"Dusty" Rhoads, who is working for the Dravo Contracting Company, is located at present in St. Georges, Delaware.

A. P. Thomas writes from Willowbrook, California, that he will be traveling most of this winter but expects to return to Newburyport, Mass., in the Spring. "The climate here is ideal," he writes, "but cannot be compared with good old New England."

The silver loving cup awarded by the Class to the first graduate to become a proud father has been presented to "Dutch" Wentz, of Pedham, N. Y. Perhaps it would be more proper to say that the cup has been presented to young James Charlton Wentz, who was born on April 19, 1924, and who will, undoubtedly, bring the cup back to Bethlehem in a few years to decorate his room.

Class of 1924

"Ed" Adams is mining engineer with the Hillman Coal & Coke Company in South Brownsville, Pa. He is living at 602 Lewis Street.

E. V. Bennett is assistant metallurgist with the Bethlehem Steel Company and is located in their main office in Bethlehem, Pa.

"Cornie" Cornelius is with the Colona Manufacturing Company, of Monaca, Pa., with the title of inspector. He lives at 1011 Washington Avenue, Monaca, Pa.

"Cuppie" Cupp is instructor in the Industrial Mechanical Engineering Dept. at Pratt Institute, Brooklyn, N. Y. He has three ex-Lehigh men among his students. In his spare time he is sales manager for an outside company.

Kenneth Donaldson is working in the U. S. Patent Office in Washington, D. C. He lives at 20 R St., N.E.

Ralph Emerson is in the silk business in Patterson, N. J. He is living at home with his family in Ridgefield Park, N. J.

Max Glen is working for Colgate & Company in their Traffic Department, in Jersey City, N. J.

Bob Heckert is teaching school in Philadelphia and living at 6712 Jackson St., Tacony, Philadelphia, Pa.

F. Lynn Hendrickson left the employ of the National Cash Register Company to accept a position as chemist, on December 1, with the Riverside Portland Cement Company, at Winkleman, Arizona.

"Ed" Hewson has accepted a position with the Treadwell Engineering Company, at Easton, Pa., as machinist and erector.

"Milt" Roth is teaching school in Arendtsville, Pa., and living at home in Butler, Pa.

"Ollie" Saunders, Jr., has been with the New York Telephone Company since graduation and is living in Brooklyn, N. Y., at 454 Seventh St.

Wally Schleicher is with the Automobile Insurance Company of Hartford, Connecticut, with offices at 82 Beaver St., New York City. He is specializing in Marine Insurance, and is living out in Maplewood, New Jersey, with his folks.

S. Seideman is located in Philadelphia in the business of manufacturing braids, at 121 N. 7th Street.

"Ted" Underwood is with the New York Telephone Company at 15 Dey St., New York City. He is living at 37 Arleigh Road, Great Neck, Long Island.

"Stan" Urban is with the Northern Peru Mining & Smelting Company, located in Trujillo, Peru.

H. A. Mitman is commercial engineer with the Bell Telephone Company, 261 N. Broad St., Philadelphia, Pa.

R. T. Settle is with the Mutual Insurance Agency, Inc., with offices at 1301 H St., N. W., Washington, D. C.

D. K. Shen has left the Lackawanna plant of the Bethlehem Steel Company to accept a post as Research Fellow at the University of Colorado, at Boulder, Colarado.

E. VanKeuren has been made Principal of the Hellertown High School, Hellertown, Pa.

J. H. VanNess is engineer with the John W. Ferguson Company, with offices in the United Bank Building, Peterson, N. J.

E. W. Baker is Engineering Assistant with the Bell Telephone Company of Pennsylvania, with headquarters in Harrisburg, Pa.

Carl M. Bortz is with the Monroe Calculating Machine Company in their Akron, Ohio, sales offices.

J. B. Dietz has taken a position with the DuPont Company and is located at their Philadelphia plant in the capacity of chemist. His business address is 3500 Grays Ferry Road, Philadelphia, Pa.

Arthur Wood has entered the General Theological Seminary at 175 Ninth Avenue, New York, N. Y.

SHOP LIGHTING

In an address delivered before the members of the Western Pennsylvania Division of the National Safety Council, Pittsburgh, Pa., March, 1918, by C. W. Price, the importance of good lighting in industrial establishments was discussed, and the disadvantages of poor lighting were clearly shown by some figures mentioned by Mr. Price.

A large insurance company analyzed 91,000 accident reports, for the purpose of discovering the cause of these mishaps. It was found that 10% was directly traceable to inadequate lighting and in 13.8% the same cause was a contributory factor. The British Government in a report of the investigation of causes of accidents determined a close parallel to the findings of the insurance company above quoted. The British investigators found that by comparing the four winter months with the four summer months, there were 39.5% more men injured by stumbling and falling in winter than in summer.

Mr. John Calder, a pioneer in safety work, made an investigation of accident statistics covering 80,000 industrial plants. His analysis covered 700 accidental deaths, and of these 45% more occurred during the four winter months than during the four summer months.

Mr. C. L. Eschleman, in a paper published in the proceedings of the American Institute of Electrical Engineers several years ago, reported the result of an investigation of a large number of plants in which efficient lighting had been installed. He found that in such plants as steel mills, where the work is of a coarse nature, efficient lighting increased the total output 2%; in plants, such as textile mills and shoe factories, the output was increased 10%.

In an investigation of the causes of eye fatigue, made by the Industrial Commission of Wisconsin, it was found that in a large percentage of industries, such as shoe, clothing and textile factories, the lack of proper lighting (both natural and artificial) resulted in eye fatigue and loss of efficiency. At one knitting mill, where a girl was doing close work under improper lighting conditions, her efficiency dropped 50% every day during the hours from 2:30 to 5.30 P.M.

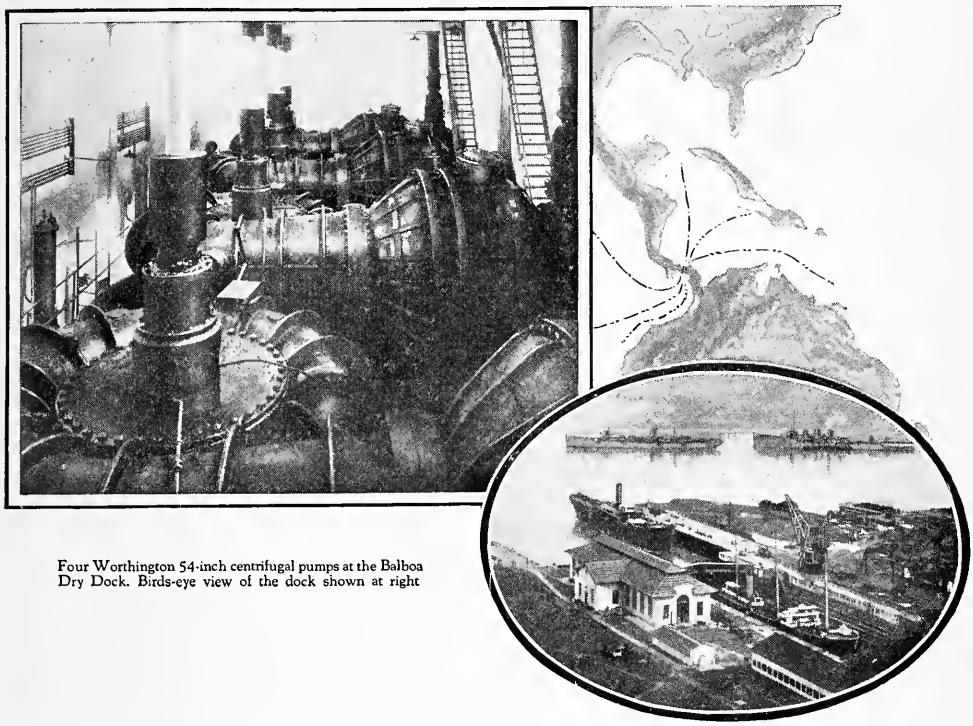
The above mentioned incidents indicate how important a factor lighting is in the operation of the industrial plant. It has been well said, "Light is a tool, which increases the efficiency of every tool in the plant." Glare or too much light is as harmful as not enough lighting, and in no case should the eyes of the workers be exposed to the direct rays, either of sun or electric light.

Windows and reflectors should always be kept clean; that is, cleaning them at least once a week, for where dust and dirt are allowed to collect, efficiency of the light is decreased as much as 25%.

Good lighting, in addition to its other marked advantages, is a strong incentive towards keeping working places clean, for it clearly exposes any place where dirt or other material has been allowed to collect. White walls and clean windows glazed with Factrolite Glass will eliminate the sun glare and increase the illumination 25 to 50 feet from the window from 38% to 72% as compared with plain glass.

Lighting is of primary importance to every employer and fully warrants a careful investigation of the subject, for there is no substitute for good lighting, and if it is not supplied the efficiency of the entire working force must suffer a serious reduction.

If you are interested in the distribution of light through Factrolite, we will send you a copy of Laboratory Report—"Factrolited."



Four Worthington 54-inch centrifugal pumps at the Balboa Dry Dock. Birds-eye view of the dock shown at right

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AT Panama, through the forty-five mile man-made strait between the seas, the ships go past in a steady stream. Strange cargoes from the Orient, rare silks and precious drugs, pass within a biscuit toss of homely cargoes of coal from Norfolk for the West Coast; lumber comes from Oregon and sugar from Hawaii.

Behind the scenes at Panama is a great organization which the casual passenger seldom sees. All those stately ships need attention: fuel and stores, and often repairs—sometimes urgent, life-saving repairs. So at Balboa a great drydock is provided, and kept busy.

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